Pests

AND THEIR CONTROL

1947
FEBRUARY
VOL. 15, NO. 2

ORGAN OF THE PEST CONTROL INDUSTRY

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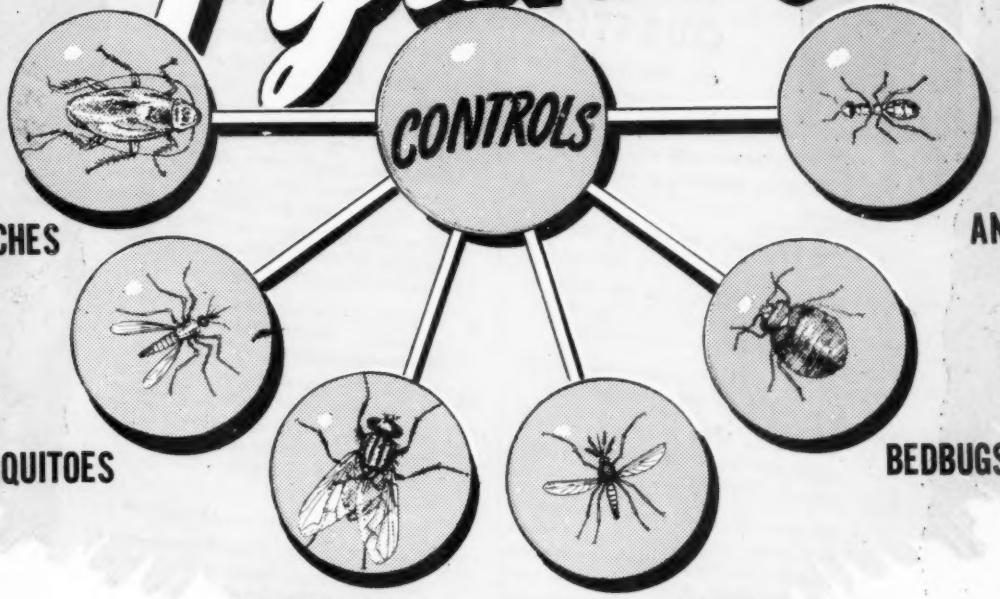

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QUESTIONS & ANSWERS

on Methyl Bromide which may be included in City or State License Examinations

Q. What three factors must always be correlated when fumigating with Methyl Bromide.

A. Dosage, exposure period and temperature.

Q. What is the dosage, exposure and temperature schedule for insect control in well sealed mills or warehouses?

A. One pound per thousand cubic feet, 24 hours, 60°F. or above.

Q. Name some foods which can be fumigated with Methyl Bromide when it is properly applied?

A. All cereal products; macaroni, spaghetti and other paste products; all dairy products including butter, cheese, whole and powdered milk, ice cream; fresh fruits and vegetables in refrigerator cars (for quarantine purposes); all dried vegetables and fruits; cocoa beans; finished chocolate; candies; sugar, nutmeats, whole grain, feed; herbs, leaves, roots etc. used in drug making; spices; dehydrated soups, animal and vegetable shortenings, baked goods; popcorn, meats and meat products both fresh and cured.

Q. What materials should not be exposed to or be fumigated with Methyl Bromide at industrial fumigation concentrations?

A. Iodized salt stabilized with sodium hyposulfite; furs; sponge rubber, white kid leathers usually manufactured into gloves and baby shoes; soya flour, except when it will be lightly blended into prepared mixes; fresh produce, unless it can be sold or used within a day or so after fumigation, living plants.

Q. What should the fumigator do if there is a question in his mind about any phase of a Methyl Bromide job?

A. Consult the manufacturer of the gas *first*. Consult local U.S.D.A. offices or Washington, D. C. authorities of the Bureau of Entomology and Plant Quarantine. Avoid obtaining advice from home-town "experts".

Q. What is meant by delayed mortality?

A. On rare occasions it has been observed that insects exhibit signs of life after exposure to Methyl Bromide. Subsequent examination of specimens has revealed that one to ten days may elapse before death occurs.

Q. Is Methyl Bromide toxic to animals as well as insects? Example?

A. Yes—For example rodents are killed with as little as ¼ pound per thousand cubic feet in 5 hours.

Q. What is considered to be a non-injurious concentration of Methyl Bromide.

A. Well below 30 parts per million of air.

(To be continued next month)

Watch this space for answers to:

Is Methyl Bromide an accumulative poison?

Can Methyl Bromide be absorbed through the skin?

Why is no "warning agent" added to Methyl Bromide?

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Pests

and Their CONTROL

Exterminators, Fumigators, Termite Control Operators, Entomologists, Insecticide and Supply Manufacturers

COOPERATING WITH NATIONAL PEST CONTROL ASSOCIATION

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EDITORIAL

New Era For PCO Industry

NOW AND then we hear about the time when things will return to normal, as though normal were a panacea for all the ills of industry. Normalcy is considered just another day passed and gone forever. It is not human nature to return to something that was, and stay put; but rather to go on to things that will achiéve a new normal.

While things remain as they are for the time being, soon industries will move up another step. That's progress. As PCO's approach the future, what is the strategy that should govern the operation of the industry? Many PCO's have already planned to expand their businesses. That shows optimism; but do not be misled into believing that every PCO will double his business. A few may triple their businesses; but others will do well to break even, while many may fall far behind in the race.

Because of wartime prosperity, many have done a nice, healthy business, but do not expect too much at present ,unless there is a right-about-face in operating present business; in offering better service to the public; in offering quality standards and so on down the line. One cannot expect to do much better unless there is a right-about-face.

And the word "quality" is perhaps used more times in selling merchandise, in sales talk, than any other. Unless one is working just as hard or maybe a little harder than his competitor to give the public the best he has for the money, he cannot expect his returns to be as much as he anticipates. In fact, he will be one of the many who will fall far behind in the race. Many progressive PCO's are determining now to give the highest possible "quality" of service to the public. This will be one way to increase your earnings instead of breaking even.

Then, there is the problem of competition from without, as mentioned in our columns before. Present PCO's will have to count on running into a stiff fight for their shares of the business. Though many have entered the PCO field with as little knowledge as possible, knowing only a smattering of the PCO business, they will eventually "cash in" to some extent and competition may prove stronger than many expect. In order to cope and compete with this unpleasant problem, and if PCO's expect to obtain their share of business, their knowledge and service will have to be better than ever.

The law of action and reaction will be about the same as in any other industry when confronted with such a problem. It appears that the war experience should have given many PCO's a broader, longer-ranged consciousness of the importance of planning, enlarging, improving, of giving better service to the public and better quality of goods to meet postwar conditions in their struggle for future business Many problems facing the Industry will have to be met. With confusion and bickering throughout the country due to strikes, lag of production and other factors now in existence, the sky is dark; and while it looks black, all know that things have to get going again.

What is needed most in these times is hope: faith in the face of discouragement, calm courage and confidence; for it will take all these qualities that we have learned to expect of business leadership. May we reiterate what has so often appeared in these columns: be certain you have "quality" in your products, "quality" in material, "quality" in your selling, "quality" in advertising your service; for in so doing you will be able to hold what business you now have as well as to secure future business in this "New Era of PCO Industry."

Who Is A PCO?

Carmen Tumolo, who describes himself as a field PCO and who, interestingly enough, has an RFD address on James Island in South Carolina, declares "Today you hear a lot of the pest control operator, particularly in the newspapers where members of the profession advertise 'Our pest control operators are scientifically trained.

"I would like to know," he asks, "Who is the PCO? How many are scientifically trained? Who in authority backs up his claim?"

In discussing the first question," Who is the PCO? he inquires, "Is it the man who sits behind a desk all day and reads books about rats, roaches and other pests. and never serviced an account or dug himself under a building like a rat, in the rain, snow, or sleet, so he could give relief to his customer? Or is it the poor, hard-working field PCO who nine times out of ten was never scientifically trained, but got it through the hard bump of experience, catching hell from his boss for failing to do the job -- from the very boss who claimed his employee-operators were scientifically trained when they really were not. It is for these field PCO's, that I am talking and I take that liberty, for I am a field PCO myself.

"What have they to show for the years of hard work and the knowledge they have gained and imparted to the same firms for whom they work? They cannot prove who they are and what they have done unless their boss is honest enough to give them credit . . .

"Now I shall deal with the second question: How many are scientifically trained? I can say without fear that one out of every thousand field PCO's has had school training for pest control and he lands in an office and doesn't know 'beans' because school and field operations are so different that they either must work together or its better to have the field training of experience and to get the schooling for yourself at night when work is over. These are our present PCO's and I am proud of the last darn one of them.

"And finally the third and last question, and also the real question; Who in authority backs up the PCO's claim? The answer is very simple: nobody. Yes, we have N.P.C.A. but the field PCO has no voice in that party; it is only for owners, whether individuals, companies or corporations. It is true the N.P.C.A. has done a fine job for industry in matters affecting research and safety, but has overlooked the man who proves that they are right and the one who carries out the orders.

"The field PCO is not protected; he has no means of showing who he is and what he is able to do and how many years he has had in the profession and no matter what he knows when he leaves one firm, it's a hard matter for him to prove the fruit of his labor. In despair he either tries business for himself or we lose him altogether, because a company can pick any man off the street and say he is scientifically trained and get away with it. . . . This may sound strange but it is happening to me and I know many others.

"I wish to state that so long as the field PCO is kept in the dark and so long as nothing is done about it

by those best able to do so, the field PCO is cheated and the public pays for something it doesn't get . . .

"I am asking only that the field PCO be given a voice in the N.P.C.A. and be recognized by all pest control companies who, when they employ him, will pay for his experience and knowledge. For then only will we have real PCO's by proof of authority as members of the N.P.C.A., by paying their own fees and receiving direct help from the N.P.C.A. without depending on any concern. The fees paid should be within reach of all PCO's, and when that day cames it will be a PCO for the people, o the people and their wholesome health."

Mr. Tumolo is to be commended for his active interest. He has raised some pertinent questions and has made some provocative comments which we shall discuss briefly.

That winning an employee's loyalty, adding to his learning, and stepping up his efficiency are essential synergists in any growing business, there is no gainsaying. Nevertheless, it does not follow that the N.P.C.A. should automatically open up membership to employees. For anyone familar with the history of the Association knows that it was founded, built and financed by the employer, and there would appear to be no more logic or reason to admit employees than there would be for employers to seek membership in unions or other employee groups. Which is not to say there is no room for co-operation among such groups to their mutual benefit, for there certainly is.

Moreover there is much the owner-operator can and should do, though oft-times has failed to do -- and that is to impart the kind of knowledge among his employees that will true up his advertised claims.

Mr. Tumolo's contention that there are too many owner-operators who have not learned the business the hard way and that they operate "Out of a book" is we think not accurate. The facts will bear us out, we are sure, when we say that there is hardly an owner-operator who has not come up from the ranks, with many still making their daily appointed rounds.

Mr. PCO what do you think? We welcome your comments.

Banner Insecticide Year Predicted

Despite the continuance of material and equipment shortages, the insecticide industry anticipates another peak sales year in 1947, according to all indications, spokesman predicted in a year-end statement. They emphasized that the use of insecticides would expand in all fields.

Requirements for DDT insecticides in the United States are reaching such proportions that it may be several years before the potential consumption can be fully appreciated. This statement is the result of a survey completed by Geigy Company, Inc., the American division of the Swiss firm, J. R. Geigy, S. A. manufacturer of DDT insecticides.

Production of the chemical DDT rose from an insignificant amount in January 1944 to a peak production rate of over 4,000,000 pounds per month in April, 1946. The total production of technical DDT from Jan. 1, 1946 to Sept. 30, 1946 was 47,152,453 pounds based on reports covering output by the industry. Manufacture of DDT for use in insecticides by civilians did not begin until September, 1945. Output in 1947 may be expected to increase further even though essential ingredients used in the compounding, such as chlorine may still be in short supply for a time.

Guest Editorial

By J. WILFRED GUNN
President, Hollywood Termite Control Co., Inc.

We have completed, as an industry, the most successful year in our history. We have been the recipients of numerous blessings, both financial and in the line of research. These conditions have stemmed directly from the recent war. What of the future?

Research will continue. This will be carried on by government agencies, insecticide manufacturers, and pest control concerns. The combined research conducted by Pest Control Operators under the direction of the National Pest Control Association will produce excellent results. The application of new techniques will be beneficial to all.

How about business? As far as termite operators are concerned, one factor is bad and one is good. The values of real estate, because of almost ten years of inflation, have reached a maximum. All over the country property values are at a standstill, or on the decline. Those areas which have held up in most cases have done so because of sale of unimproved properties. In those areas where clearances are demanded by buyers and lending institutions, business has decreased to the operators. This condition has naturally led to more competitive bidding. The good feature is the volume of new construction which is and will continue on the upgrade. This will make for business in future years, but for this year it will be of little direct value to pest control operators.

In short, it behooves us to realize that we are no longer order takers. If we are to maintain the excellent business which we had in the last few years we will have to become salesmen again. It is necessary that we analyze costs, especially overhead, possibly labor increases, and a great upsurge in material costs if we are to profit from our efforts.

* Los Angeles, Calif.

JOHN G. VOGEL

As we go to press we are shocked to learn of the death, on January 24th of John G. Vogel, head of Vogel-Ritt, Inc., Philadelphia, as a result of injuries sustained in an automobile accident a week previous. Critically injured in the same accident was his wife, Mrs. Vogel.

Able, hard-working, sincere to the core, Mr. Vogel served the NPCA wisely and well with distinction. Not only was he one of its regional vice presidents but he was also chairman of the 1947 National Convention Committee. He will be sorely missed by his family, his business associates, his Association and a host of friends.

Our condolences to his family, and sincere well wishes for Mrs. Vogel's speedy recovery.

O. W. Morris Dies, Family Spared in Gas Tragedy

Oliver W. Morris, 35, owner of the Morris Pest Control Co., 3500 Rockwood Ave., Memphis, Tenn. and former professional wrestler, lost his life, and Mrs. Morris and their two children, James and Betty Jane, and Mrs. Morris' mother, Mrs. R. N. Vaughn, were overcome on Jan. 12th by carbon monoxide gas escaping from a floor furnace with a blocked vent while they slept. Although she awoke terribly sick as a result of the gas, Mrs. Morris managd by superhuman efforts, after first collapsing, to crawl to the telephone, summon aid and thereby save herself and the remaining members of her family. All the survivors required heroic medical treatment. Mr. Morris was a member of the N.P.C.A. and was inattendance at the New Orleans convention last October.

We extend our deepest sympathy and condolences to the Morris family.

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Recent Developments in Insecticides of Interest to Pest Control Operators

By E. F. KNIPLING
United States Department of Agriculture, Agricultural Research Administration
Bureau of Entomology and Plant Quarantine

Note: This paper was read by Mr. Knipling at the Fourteenth Annual Convention of the National Pest Control Association in New Orleans, La., October 28, 29, 30, 1946.

THIS IS my first opportunity to attend a meeting of the National Pest Control Association and to take part in the program. Even though I haven't directly taken an active part in the affairs of your Association, I have during recent years become more and more interested in your organization and in the entire pest control industry. Fundamentally, we are working toward the same objective---that is to develop the most effective methods of controlling pests. To attain this objective we must constantly improve our knowledge, techniques, and procedures. Better results will increase appreciation of the service we can render and recognition of the benefits secured from effective control.

Fortunately, developments during the last few years have made it possible to provide greater service to the public, but there is still room for improvement in our methods of combating the many destructive and annoying pests with which we are concerned. There are at least four important reasons why we cannot rest on our laurels, so to speak, even in connection with those pests which we believe can be readily controlled.

First, conditions are more favorable for an increase in numbers of many pests. In our homes, for example, a greater variety of food in our pantries and more clothing in our closets, together with controlled temperatures the year round, most certainly favor the increase of some of our household pests. The same situation exists in warehouses, retail stores, and processing plants.

Second, greater speed and volume of transportation and increased shipment of foods and supplies, together with greater concentration of populations and growth of metropolitan areas, favor the spread and survival of insects.

Third, there is reason to believe that pests can adapt themselves to new environments or they develop a tolerance to measures applied for their control.

Fourth, the people with whom we deal will continually demand higher standards of perfection in meeting pest problems. Twenty-five years ago housewives may have tolerated a number of flies in the home or dozens in the business establishments where they obtained their foods. Ten years ago their tolerance had been reduced and today they are concerned about a few flies. No doubt in the future the public will demand practically complete elimination of flies in their homes and in restaurants, grocery stores, and other establishments. The same situation will apply to other important pests with which we are concerned. Furthermore, health-department and other government regulations regarding sanitary practices are becoming more stringent.

This brief review of the problems confronting entomologists and others, emphasizes the need for continued research to develop new chemicals or methods, as well as to obtain more efficient use of the materials and methods now available.

The pest control industry can expect more and more effective and desirable materials and methods for destroying pests of all kinds. The greatest single advance up to this time has been the development of DDT. Manufacturers of insecticides, partly because of this development, have stepped up their research programs. New insecticides are being found, as well as new methods of use and improved formulations of older materials. These materials are being tested and developed further by Federal and State workers, universities, and various private and industrial research establishments. This concerted effort makes a bright picture for pest control operators, and as you discover more efficient methods of employing such materials you can render greater service to your industry.

During the war the divisions of the Bureau of Entomology and Plant Quarantine concerned with problems associated with your industry were occupied largely with studies of direct interest to the armed forces. Much of the information obtained can be adapted to civilian needs, and, although research of a military nature is continuing, more attention will be given to civilian problems in connection with the control of insects affecting man, animals, and the household.

A number of new materials developed by the insecticide industries during the last year or two are now being investigated. Owing to lack of information on toxicological effects of these materials on humans and animals, and because of need for further study under field conditions, no recommendations are yet being made by the Bureau. However, it seems safe to say that some or all of them will find a place among the weapons we now have for controlling pests.

I will briefly summarize available information obtained from preliminary tests with the more promising new insecticides. Most of this information is based on data obtained by workers at the Orlando, Florida, laboratory.

Insecticide 1068

A chlorinated hydrocarbon known as 1068 is of particular interest at this time. Results of tests with 1068 were first reported by Kearns, Ingle, and Metcalf (3) about a year ago. This material is highly effective against a number of insects, and more thorough tests under practical conditions are urgently needed.

The material has certain properties, its solubility in common solvents being one, which may prove advantageous in the preparation of some types of sprays.

This insecticide is reported to be highly effective against roaches. In preliminary tests at Beltsville with German and American roaches (**Blattella germanica** (L.) and **Priplaneta americana** (L.), E. R. McGovern found the material to be promising. J. B. Gahan, of the Orlando laboratory, reported the material to be highly effective in a limited number of laboratory and practical tests.

Toxicant 1068 is also effective against flies and mosquitoes when employed in space sprays. Gahan found that one and two months after

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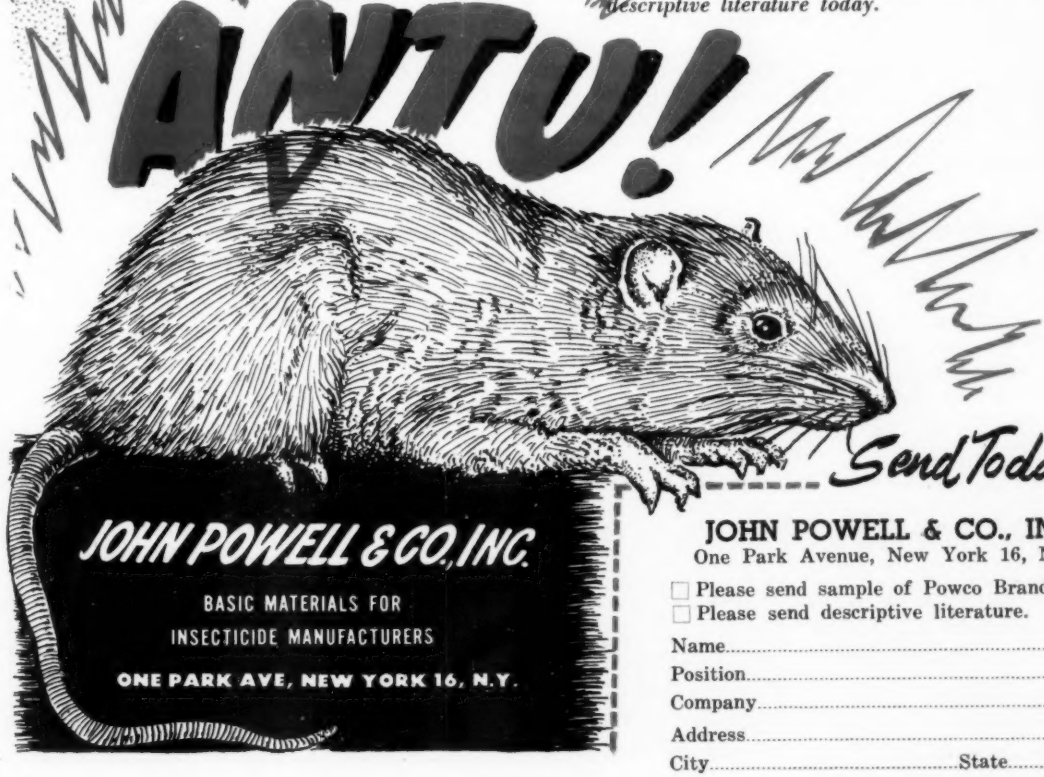

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treatment 1068 employed as a residual spray (50-100 mg. per sq. ft.) was more toxic than DDT to adult mosquitoes **(Aedes aegypti** (L.) and about equal to DDT against flies. When compared on the basis of speed to kill, however, DDT was more rapid against flies, whereas the two materials were about equal against mosquitoes. In field tests, C. C. Deonier and two associates of the Orlando laboratory found that, when applied by airplane or with ground equipment, DDT was more effective than 1068 in killing mosquitoes present at the time of treatment, and that it also exhibited longer residual effects. In laboratory tests these workers found the two materials to be about equal when tested agains larvae of **Anopheles quadrimaculatus.**

W. C. McDuffie and G. W. Eddy of Orlando, found that the insecticide was promising against the lone star tick **(Amblyomma amricanum** (L.) when applied as a dust to infested areas, and it appeared to be superior to DDT for this purpose.

A rather thorough study has been made with this material against the body louse **(Pediculus humanus corporis Deg.)**... When impregnated in cloth or when employed in powder form, it proved much more effective than DDT. It also acted faster than DDT, paralyzing lice in 3 hours as compared with 6 hours for DDT. When compared with DDT on the basis of persistence, 1% and 5% powders of the two materials were about equal----perhaps 1068 was slightly more effective. In washing tests garments impregnated with DDT were more resistent to loss of effectiveness than were those treated with 1068.

Pyrethrum Insecticides

The old stand-by pyrethrum is still with us. No doubt years ago many investigators felt that we knew the limitations to this insecticide. Within the near future, if not now, some people will think the same about DDT. A few years from now they will say this about 1068 and other insecticides. During the first wave of enthusiasm over DDT many thought that was the end to pyrethrum. However, pyrethrum has properties no other known insecticide possesses, and it seems to fit well into our program of insect control. The most desirable features of pyrethrum are its speed of action and low toxicity to man and animals. Its great disadvantages are instability and high cost.

Much has been done in recent years to extend the use of pyrethrum. The development of a number of synergists, which permit a reduction in the amount of pyrethrum required, has done much to overcome the high cost of this insecticide and to broaden its uses. Furthermore, we know more about how to use pyrethrum effectively. For example, this insecticide was formerly not considered useful as a residual type spray. However, its promise in this respect was recognized even before DDT became available, and except for its cost and nonavailability it could be employed as a residual treatment for controlling a number of insects in the home.

Several synergists when added to pyrethrum sprays greatly improve their knock down and killing properties for both flies and mosquitoes. (Schroeder, Jones, Williams, and Lindquist, unpublished data). Among the better materials are 4 (3,4-methylene-dioxyphenyl)-5-methyl-1, 3-dioxane, "piperonyl cyclohexane," and sesame oil concentrate. More recent work has demonstrated that against flies piperonyl ether butoxide is superior to those mentioned. Results against mosquitoes were not so marked. It has also been shown at the Orlando laboratory that "piperonyl cyclohexane" and seame oil concentrate increased the killing and lasting properties of pyrethrum when applied as a residual spray against flies and mosquitoes.

A number of materials increased the activity of pyrethrum against German and American roaches among the most promising of which were N-isobutylundecylenamide, "piperonyl cyclohexenon," and piperonyl ether butoxide. Some of the known stabilizers, such as hydroquinone and Phenol S (isopropyl cresols, byproduct of thymol manufacture), retarded deterioration of the pyrethrum in powders. A combination pyrethrum-synergist-DDT roach powder is now being tested by the Army.

For several years extensive tests with synergists pyrethrum for use against body lice have been carried out at the Orlando laboratory. Most of the synergists already mentioned have been found to increase the activity of pyrethrum against body lice. These finding on lice add to our knowledge of the values of synergists for improving the insecticidal effectiveness of pyrethrum.

Benzene Hexachloride

Benzene hexachloride is another relatively new insecticide that promises to have a place in pest control. This material has at least five isomers. The gamma isomer is the most active against insects.

The strong musty odor of the crude chemical is objectionable, and for this reason its uses will likely be restricted unless the odor can be eliminated or masked. This is true especially in connection with its use in homes, around foods, on the person, and in business establishments. Nevertheless, there are situations where odor will not be a major consideration.

According to Gersdorff **et. al. (2)**, the gamma isomer of benzene hexachloride is 8 to 10 times as toxic as DDT to houseflies when employed as a spray. The knock-down time of the two materials is about the same. When tested in aerosols containing pyrethrum, it proved more effective than DDT. Madden **et. al. (4)** and Deonier (unpublished data) found that crude benzene hexachloride was less effective than DDT when employed outdoors for the control of adult mosquitoes.

As a residual spray benzene hexachloride is highly effective against mosquitoes, but less effective than DDT against houseflies.

Benzene hexachloride also proved to be among the better mosquito larvicides, although in general less effective than DDT. A. W. Lindquist, W. C. McDuffie, and associates at Orlando found it to be very effective against blowfly found in animal carcasses, and McGovran **et. al (5)** found it to be very toxic to housefly larvae.

On basis of tests conducted at the Dallas, Texas, laboratory of the Bureau, benzene hexachloride offers considerable promise for the control of certain insects affecting animals. It is effective against ticks and lice on livestock and shows promise for controlling poultry parasites. It is also highly effective against mites (chiggers) when employed in infested areas, according to studies conducted at the Orlando and Savannah, Georgia, laboratories.

3956

Another chlorinated hydrocarbon, known as 3956, is creating considerable interest as an insecticide. Various workers in the Bureau have found that for certain purposes this insecticide is superior to DDT against a number of insects. For most uses, however, it seems to be somewhat less effective than DDT.

When employed in space sprays this compound is less effective than DDT against both flies and mosquitoes, and considerably less effective when used in aerosols. It has very little knockdown action. Although highly toxic to mosquito larvae (Deonier **et. al. 1)**, it is slightly less effective than DDT.

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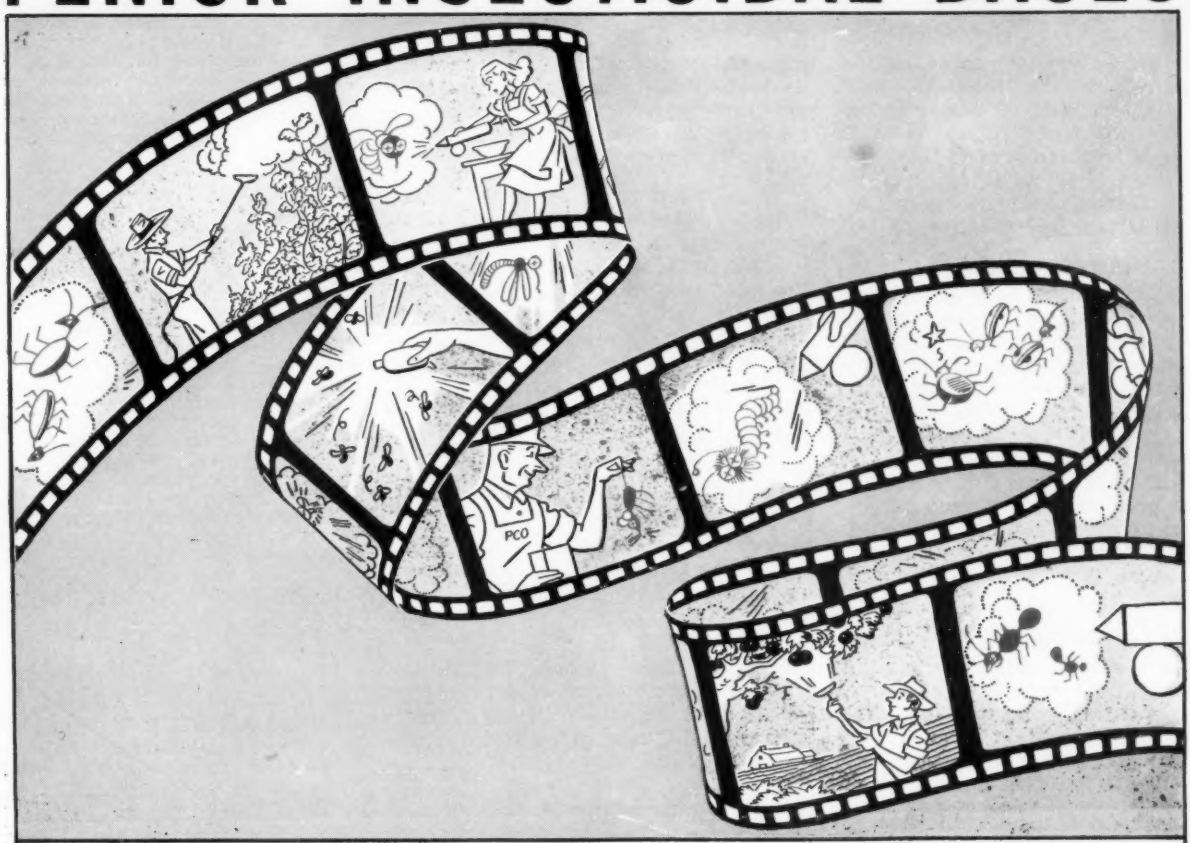

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It is promising for the control of ticks and mites when applied to vegetation in their natural environment. According to E. R. McGovran, it seems to be equal to DDT when used against the German roach but is less effective against the American roach.

When tested against body lice, as a powder and when impregnated in clothing, 3956 was found to be slightly superior to DDT in all respects, including minimum toxic concentration, speed of action, and persistence.

Other Insecticides

A number of other new insecticides have been evaluated against several insects affecting man. The methoxy and fluorine analogs of DDT, hexaethyl tetrophosphate, TDE (or DDD), and P-chlorophenylsulfone have in general, proved less effective than the materials already discussed, and at present seem to be of no particular interest in controlling insects affecting man and animals. Hydroxypentamethylflavan has shown considerable promise for control of chiggers in infested areas.

Conclusion

In conclusion, I should like to state that many of us engaged in research work on pest control appreciate that there is usually a wide gap between the point where research men are forced to terminate their project and the point where those concerned with the problem of practical application begin. The many environments under which insects and other pests live, the tremendous variations in insect populations, the differences in susceptibility of closely allied species, and the great variety of pests are only a few of the factors that make it virtually impossible for the men in research to lay down hard and fast rules that can be followed under all circumstances. In view of this, each one of you doing pest control work will have to remain on the alert and, in a measure, constantly carry on experiments in connection with your routine activities. This will be especially important during the next few years, for you will probably have several materials to consider in your program.

In connection with your tests to evaluate the relative effectiveness of several materials, I should like to introduce a few words of caution. Do not draw conclusions too quickly as to the relative merits of the materials under consideration. Remember that many factors can influence results, and several experiments under many conditions using different methods of application may have to be conducted to determine accurately the effectiveness of a particular material.

No other organization is in a better position than yours to appraise different materials and methods for controlling pests. If all of you will take part in the program suggested, the information gained will not only be useful to you in your business but will also provide information of value to research workers and others associated with the pest control industry.

Since the work of the pest control industry involves practical and commercial application of the information coming from the research organization of this Bureau, it is to the best interests and for the greatest progress of all that such closely related groups should cooperate to the greatest possible extent. Our aim will be to foster such cooperation at every opportunity.

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Let the Pigeon Beware

Buildings which have been pigeon-proofed are no place to roost for Columba Livia.

Manhattan's pigeon population has the same problem that faces a lot of people these days—where to live? Not that pigeons, any more than homeless people, are particular. Any window sill, eave, rainspout or carved stone angel atop a church roof will do. But there is a concerted effort afoot to dislodge the birds from these time-honored lodging places, and the weapon used is "pigeon proofing."

Pigeon-proofing, the brain-child of a roofing contractor, consists in studding ledges, copings and other salient points of a building with dull pointed, rust-proof metal spikes. The spikes are of various heights and are so arranged as to frustrate any poaching pigeon. Being almost invisible to the passer-by, they do not detract from the appearance of the building, and, being blunt, they do not injure the pigeons; they merely shoo them away.

Among New York buildings already pigeon-proofed are the Public Library, Grand Central Terminal, Pennsylvania Station, the Cathedral of St. John the Divine, St. Patrick's and numerous movie houses and hotels. During the war scarcity of materials prevented large-scale use of this method. But now that metal is available again, many buildings throughout the country will soon be safegaurded against a scource of damage amounting to thousands of dollars a year.

Damage

The case of the people against Columba Livia, to give the defendent his Latin title, is hardly open to rebuttal. Property owners incur considerable expense cleaning out drainpipes and building gutters blocked with nests, dead birds and debris. Large sums must be spent for cleaning window sills, awnings and fire escapes. And brick, stone and even iron suffer actual deterioration, necessitating expensive repair work.

The New York Park Department must hose walks and buildings of the Central Park Zoo every Monday because, an official states, Saturday and Sunday visitors persist in feeding the pigeons, attracting them in droves. Father Duffey's statue, at Forty-sixth Street and Broadway, is bathed once a month in order to keep it recognizable, and so with most of the other public monuments in the city.

Scratch

Another charge against pigeons is that they frequently harbor vermin. A fashionable church in lower Manhattan was fumigated at great expense and trouble before it was discovered that the itching parishioners had the pigeons to blame. Pigeon-proofing promptly followed. Some cities, notably Newark and Philadelphia, have outlawed pigeons on still another count: that of spreading a disease called "ornithosis," similar to psittacosis, or parrot fever. It is a form of pneumonia, and is sometimes fatal.

Scare-Pigeon

Before pigeon-proofing was invented, many fantastic devices were employed, generally ineffectively, to ward off unwanted feather guests. Poison, of course, is illegal; so are snares. And the people who enjoy the amiable antics, the graceful flight and musical cooing of pigeons are ever alert against any practices which would "liquidate" the pigeons and remove them from the city scene.

A real estate company tried spraying its building with a fluid obnoxious to birds. But the smell was so obnoxious to human beings, too, that the buildings had to be deodorized. Another company, in Philadelphia, procured a ferocious-looking owl and installed him on a ledge of a pigeon-harboring building. The owl, contrary to the surmises of the company, took a friendly view of the pigeons, and the latter found added nesting space on top of its cage.

Before the New York Public Library was pigeon-proofed, two porters were assigned to the Fifth Avenue entance with orders to keep the pigeons away. Agile though they were, two porters couldn't keep up with a flock of hundreds of birds, and the pigeons won the decision every time.

Bad Birds

Not long ago the company that manufactures the pigeon-proofing process received a plaintive letter from the warden of a State prison in the Middle West. "We have about the institution, around the cell halls, roofs, etc., many pigeons," the warden wrote. "They are contantly increasing. What can we do?"

These "jail birds" may have been stool-pigeons, but the device was forwarded, and it worked.

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Common House Fly, *Musca Domestica*. Reproduced from photograph of model, The American Museum of Natural History.

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The Application of the Food, Drug and Cosmetic Act to Rodent Contaminated Food

By McKAY McKINNON, JR.
Chief, New York Station, U. S. Food and Drug Administration

Editor's note: Address was delivered before the New Jersey Pest Control Association, Inc., Newark Evening News Auditorium, 215 Market St., Newark, N. J.

MR. PRESIDENT, MEMBERS OF THE NEW JERSEY PEST CONTROL ASSOCIATION, AND GUESTS:

I am glad to be with you this evening. I was tempted originally to speak to you extemporaneously. This is truly a meeting month. I have just returned from a full week's meeting of the field and administration officials of our own organization, and next Wednesday have to sit as secretary to a three-day meeting of the Central Atlantic States Association of Food and Drug Officials in Trenton. However, this particular gathering, including as it does representatives from pest control firms, regulatory officials and operators of private establishments, appears to provide an opportunity to deal with this problem specifically and not in the generalizations in which an extemporaneous speaker is likely to take refuge.

I submit to you all that the problem of rodent control in food establishments is of paramount importance not only from the standpoint of ethics but from the standpoint of law compliance. The Food and Drug Administration, which I represent, is, as Government agencies go, a "small outfit." We have a staff of slightly less than 1,000, of which approximately 575 individuals are trained in various phases of scientific work. About 40% of our Scientific personell is made up of inspectors. We are charged with the enforcements of several Acts, most important of which is the Food, Drug and Cosmetic Act of 1938. As you know, this legislation supplanted the original Food and Drugs Act which was passed in 1906. Next month we celebrate our 40th anniversary as a law-enforcing agency of the United States Government. I want you to keep in mind the number of investigators that we have throughout the United States while you listen to these figures:

There are, according to our latest estimates, about 65,000 establishments in the United States which manufacture of food products. There are 6,500 establishments which manufacture drugs and therapeutic devices of various kinds. There are in the neighborhood of 1,000 manufacturers of cosmetics, coal-tar colors, and the like. The total value of the output of these 70 odd thousand domestic factories, much of which moves in interstate commerce, is estimated at more than 25 billion dollars annually. In addition, there are more than 3,000 public warehouses which handle domestic and imported goods, and we are concerned with the sanitary conditions which prevail in all of the categories enumerated. From an evaluation of these figures - and I purposely have not dwelt on the more than 20,000 lots of imported merchandise to which we give annual attention - it is obvious that complete coverage of all products moving in Federal jurisdiction is impossible with this limited personnel. Operating with so much more to do than can be done, it is essential that we excercise a high degree of selectivity in our operations and aim (1) at the suppression of violations which constitute a menace to health: (2) violations which are offensive to public decency; and (3) to the extent that time and funds permit, to the correction of violations which constitute economic cheats. In my talk to you I will limit my remarks to the first two classifications: violations which menace health and violations which offend decency.

The section of the Food, Drug and Cosmetic Act which deals most directly with rodent contaminated food is 402. Section 402 (a) (3) reads, "A food shall be deemed to be adulterated if is consists in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food." Section 402 (a) (4) provides that "A food shall be deemed to be adulterated if it has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth or whereby it may have been rendered injurious to health." Food adulterated within the meaning of these paragraphs is contraband and may not be introduced, delivered for introduction, or received for subsequent sale in interstate commerce. A firm and its responsible officers may be prosecuted, fined, and jailed for trafficking in adulterated foods in interstate commerce. The merchandise itself may be seized, and the manufacturing firm and the receiving firm, if need be, may be enjoined to prevent the distribution of food held to be adulterated.

Penalties are severe. Under the prosecution section of the statute a firm may be fined as much as $1,000 per offense for an initial violation: and individuals may be fined the same amount or jailed for a period of one year per first offense, or both. Subsequent violations may be penalized to the extent of $10,000 per offense or, in the case of individuals, three years in jail, or both. Incidentally, the heavier penalties apply in initial cases where violations are committed with the intent to defraud or mislead. In dwelling briefly on these horrible possibilities, I seek to make abundantly clear that in putting this statute on the books, Congress recognized that it was dealing with the health and welfare of the American public and undertook to provide penalties commensurate with crimes against the people of this country.

Prior to the passage of the Food, Drug and Cosmetic Act of 1938, adulteration was a condition to be determined by examination of the product itself. The inclusion in the 1938 law of Section 402 (a) (4), which I quoted, changes the sights, so to speak, on adulterated foods and classes foods as adulterated if they have been prepared, stored or held in a manner whereby they have become or might have become contaminated with elements of filth.

Contributed filth may fall into 8 categories: (1) human introduction; (2) rats and mice; (3) accessibility of plants to animals and children; (4) flies; (5) filth introduced by water supplies or from contact of utensils or equipment with adjacent polluted streams or bays; (6) cockroaches; (7) dust; and (8) filth introduced in raw materials, such as parasites, insects and their excreta, decayed matter, adhering material, mold and fungi, and the excreta of

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rodents. By pre-arrangement I agreed to limit my discussion to the rodent angle, and in the remainder of this talk, please consider the word " rat" as meaning the rat or the mouse. Each is equally objectionable from the standpoint of food contamination.

The history of the rat's role in the spread of devastating communicable disease to man easily classifies the rat as man's worst enemy in the animal kingdom. Research workers have shown that rats and mice are carriers of Salmonella enteritidis. One worker examined 177 mice and found 26 to be carriers of Salmonella. Another worker examined 775 rats and found 56 infected. Salmonella organisms are known causes of food poisoning. For example, early in April 1945 a series of outbreaks of food poisoning occured almost simultaneously in several towns in two-adjoining states. Investigations conducted by local health authorities and by the Food and Drug Administration showed that the factor common in each of the illnesses was the consumption of Colby cheese. The incubation period and symptoms displayed by the victims. numbering more than 75, were typical of Salmonella infection, and examination of various samples of the cheese showed that it was heavily contaminated with Salmonella typhimurium. The cheese was traced to a manufacturer in an adjoining state, who admitted that the cheese had been manufactured the month before and shipped out within three days, even though the cheesemaker had removed from the vat a dead mouse which had been found floating in it. Later it was learned that cheese from this vat was also responsible for an intrastate outbreak involving 100 persons. The cheese was recalled to the factory and was placed under State embargo. The manufacturer was cited, and criminal prosecution was instituted under the Food, Drug and Cosmetic Act.

One of the serious diseases caused by rats is Infectious Jaundice, sometimes known as Weil's Disease. It is a disease primarily of rats and secondarily of man. About 10 percent of all wild rats, says Rosenan, harbor the spirochetes of Infectious Jaundice. These spirochetes live in the kidneys of rats and are excreted in the urine. Weil's Disease in man, caused by rat urine infection, in food manufacturing plants, is not theoretical. In the 1945 Report of the Food and Drug Administration there are discussed four cases of Weil's Disease which developed among fish cutters of a small fish-filleting plant situated along the water front of an East Coast city. Two of the stricken men died. Many rats were caught in traps at the focal point of the outbreak, and the causative spirochetes was found in 10 per cent of them. Injunction proceedings were initiated, and the firm signed a stipulation agreeing to vacate the infested premises immediately. The city health department inaugurated a rodent-control program directed toward cleaning up the whole area where numerous fish-cutting plants were clustered along the water front. In the interest of public welfare and to promote national health, food plants should be absolutely rodent-proof and should be kept free from rats and mice.

Now let us go on for a moment to those cases where there is not necessarily demonstrated a definite health hazard but where the evidence constitutes an offense against public decency. The feces and urine of rats are filth per se, and the presence of either in a food product renders the product adulterated and illegal. The courts have so held and, as time passes, are imposing larger fines and prison sentences upon manufacturers who overlook this basic verity. Recently, in discussing the prosecution case brought against a bakery in the Southern District of West Virginia, Judge Ben Moore stated:

"It must be understood that in all of these cases that come under the Pure Food, Drug and Cosmetic Act, it isn't enough for the operator of the plant to do all he can do. If he can't get the plant in satisfactory condition, he must close it. That may seem a little harsh in times like these, when it is hard to get help and materials. Nevertheless, this is a statute that must be enforced for the protection of the public, and where the public interest conflicts with the interests of the plants, then the public interest is paramount. It is simply a case where the public must not be given products which are produced under insanitary conditions, regardless of what is necessary to prevent it."

In a similar action, this time for injunction against a bakery in the Northern District of Iowa, Judge Graven said:

"It is the claim of the defendant that he should not be enjoined from shipping his bakery products in interstate commerce because he is doing the best he can in view of the difficulty of securing help and in view of the difficulties caused by the abandoned barn in the matter of the rodent problem. While the situation in which the defendent finds himself can be sympathetically understood, yet it would not be good law or good sense to permit a person to prepare food for such purpose under insanitary conditions. The Federal Food, Drug and Cosmetic Act does not provide that parties shall avoid doing such things if it is possible, it provides that it shall not be done at all. A party who cannot prepare proper food products under sanitary conditions must cease putting such products into interstate commerce."

These interpretations on the part of our Courts fully confirm the original Congressional intent that food products must be manufactured with safeguards sufficient to insure their freedom from filth.

The problem of sanitary operation of food establishments will be well on its way to solution when food manufacturers and the operators of warehouses in which food is stored accept fully the responsibility imposed upon them by Federal and local statutes and by a realistic evaluation of their obligation to the American public. They will then take the steps necessary, despite all difficulties, to safeguard their raw materials, their factory operations, their finished products, and - in the case of warehouses - commodities entrusted to them for safekeeping from rodent or insect contamination and from adulteration through any of the causes mentioned previously.

A plant which has a rodent population is not a clean plant. It is axiomatic that one frequently cannot see the forest for the trees. We in the Food and Drug Administration frequently find that plant officers have become so used to conditions which have existed over a long period of time that they fail to recognize in these conditions potential elements of contamination.

I have pointed out to you the fact that the Food and Drug Administration is seriously understaffed in the light of its tremendous job. I have no doubt but that state and local situations in a smaller measure perhaps also reflect the need for more trained regulatory officers. The mere fact, however, that neither the National nor the local organizations have sufficient personnel to make frequent visits to food producing establishments can in no way ameliorate the existence of insanitary conditions or transfer from the shoulders of the manufacturer or the warehouseman the positive responsibility for compliance with Federal law and state and local regulation.

The answer, it seems to me, is clear-cut. Food manufacturers must develop a system of self-policing. This idea is not novel. In some places where it has been tried it has been

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signally successful. I should think that no food manufacturing establishment should be operated without a sanitarian within the plant organization. In large establishments the sanitarian may be one trained in rodent control or in entomology and in the laboratory techniques utilized to detect the presence of filth in food products. In a smaller plant the sanitarian might well be an individual without formal training but one to whom the presence of filth is literally anathema. To function most effectively, such a sanitarian must be educated in the habits of rats, in the methods to control them and eradicate them, and in addition must be given full opportunity to utilize as promptly and as frequently as necessary the services of scientifically trained pest-control resources. In all cases, the efforts of the sanitarian to maintain a food-producing establishment in a state of cleanliness will be in direct ratio to the authority given to correct on-the-spot forthwith insanitary conditions encountered. New construction should be designed with a view to erecting a rodent-proof structure. Old construction should be repaired and remodeled (1) with a view to keeping out rats and (2) with a view to safeguarding all raw materials, finished products, and manufacturing equipment.

We of the Food and Drug Administration are greatly interested in any approach to the problem of rodent control which is sincere and effective. We naturally recognize the hazards which exist in a continuing rodent population and have little patience with poorly-conceived programs of eradication which are ineffective and which serve to feed and shelter, rather than to exterminate these pests.

And now I wish to address myself primarily to members of the group who furnish pest control services. The enforcement of Sections 402 (a) (3) and (4) of the Food, Drug and Cosmetic Act has brought pest control service organizations into greater prominence from the standpoint of food and drug manufacturers than they ever have achieved heretofore. The enforcement has greatly increased the demand for adequate pest control service and has projected daylight into the operations of such organizations, with the result that good practices have been revealed and bad practices have been brought out into the open. Your organization and its constituent members have and will continue to have the greatest opportunity to capitalize upon the corrective activity which this program of enforcement has brought about. You as an organization and you as constituent members have a large responsibility to the public, to your clientele, and to the cause of law enforcement in taking advantage of the opportunities so presented.

Too often we have encountered situations in food manufacturing establishments which have been so flagrantly in violation of the Law that it has been necessary to bring criminal prosecutions against plant operators and to exact the extreme penalties of the statute, including jail sentences, for conditions found. In a number of these cases we have been confronted with the statement by plant operators that they supposed their plants were entirely rodent-free since they employed exterminating agencies to rid their plants of rodents and to maintain them in a rodent-free condition. Such service were apparently contracted for on an annual basis, and in some instances, I regret to say, we have had firm reason to feel that the pest control operators were not loath to leave behind certain degrees of continuing infestation, presumably to insure contract renewals and continued business.

In many instances where we found extreme rodent infestation in plants serviced in this lackadaisical fashion. a study of the work done indicated little care and an alarming lack of effectiveness. Further, such limited exterminating measures as taken were on an infrequent, sporadic basis and appeared to be practically worthless. In accepting contracts to maintain food establishments in a rodent-free condition, pest control organizations which fall down on the job may well become morally responsible for the severe penalties enacted of their clients for failure fully to obey the law.

We are advising plant and warehouse management to contract (1) for rat-proofing, (2) for complete elimination, and (3) for constant and vigilant and effective inspection to insure against re-infestation. My advice to you as an organization is to take all steps necessary to insure that each of your members furnishes to every customer that degree of protection contemplated in a bona fide contract, which will serve to maintain these manufacturing establishments in an entirely rodent-free condition. I urge also, in operations involving food establishments, that appropriate consideration be given to the prevention of the addition of toxic substances to the food being produced or stored. A high degree of selectivity must be exercised in the use of baits and poisons to prevent damage to consumers later.

We have in our files reports of investigation of firms which indicate problems of adulteration of raw materials and finished food through rodent activity have been completely solved. These problems cannot be tackled for a day and ignored for six months, however. As you know, all that the rat asks is a place where he will be reasonably well sheltered and have access to food and water. Once these facilities are denied him for a sufficient period of time, he will cancel his lease and move out. I sincerely trust continued efforts in this field will make apartments as hard to find for ratus - ratus, his family, and his friends as they are for human beings to locate in this area at the present time.

Suggests Rodents May Inherit Earth

Harvard Scientist Wonders If Man Will Keep Supremacy in Evolutionary Process

By William L. Laurence

Not man but rats, mice or some other humble and inconspicuous group of animals may be the ones to evolve into the higher forms that will dominate the earth in the inexorable process of evolution, Prof. Alfred S. Romer, noted Harvard paleontologist declared on January 4th at the close of the Princeton Bicentennial Conference on genetics, palentology and evolution.

"In considering future evolution," Professor Romer said, "we humans rather conceitedly assume that we are the forms from which further progress will go on. But that is far from certain. When we look over the earlier history of the world, we find that almost never do the successful and flourishing types of one period give rise to the dominant forms of the next. They become extinct and some previously obscure type takes their place.

"What are our prospects? Will we be succeeded by some group now humble and inconspicuous? What about the rats and mice? They are a tough and hardy group, which can survive in almost any environment.

"Will the mice inherit the earth when we have passed way. Or is man's brain enough of an evolutionary novelty to enable him to upset the ancient evolutionary laws and establish a new pattern of progress?"

Some scientists, like Robert Broom and Julian Huxley, Professor Romer said, feel that evolutionary progress is over; that all animals are now so specialized that any further major advances is impossible. However, he added, he doubted that this view was correct.

"If we were dinosaurs, back in the days of their greatness," he said, "we would have probably had similar thoughts (if we'd had brains to think them). The dinosaurs did not go further and become extinct; but evolution was far from over."

Professor Romer's Talk was part of a program broadcast over CBS under the auspices of Science Service.

— *N. Y. Times*

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S-2

Insect Control in Dairy Plants

By GEORGE E. GOULD, *Purdue University Agricultural Experiment Station, Lafayette, Indiana*

Because dairy plants have become a legitimate and growing sphere of service interest to the PCO, the following article, reprinted from Milk Plant Monthly (July, 1946), should prove timely as well as technically constructive. The writer, incidentally, has been a frequent participant in NPCA programs, where his research findings have served to orient the Industry's basic knowledge.—Ed.

THE CONTROL of insects around the dairy farm and the dairy plant is essential to the manufacture of quality dairy products. The presence of such extraneous matter as insects and insect fragments is highly objectionable in milk, cream, butter, cheese and other products and can be avoided if a thorough program of sanitation and insect control is followed on the farm and in the creamery. The recent developments in chemical insecticides and especially of the new material DDT (dichloro diphenyl trichloroethane) have provided highly effective remedies to combat the principal enemy of milk processors, the house fly. With the use of DDT as a barn spray this summer the dairy farmer is expected to have little trouble with flies and should deliver to the creamery a better quality raw product. Any contamination that subsequently gets into the milk will be determined by the sanitation and insect control program in the processing plant.

Insect control is closely linked with plant sanitation and is actually a part of that program. So often, however, insects are considered as a necessary nuisance and little attention is given to their eradication, even though the plant is scrupulously clean otherwise. In the past few years the shortage of help has made even the routine cleaning of equipment and premises difficult, but additional help is now rapidly improving this condition. The sanitation program is an important step in the elimination of insect pests, as it provides for the cleaning of equipment, the washing down of floors and the destruction of many breeding places both inside and outside the buildings.

Naturally insects are attracted to the dairy plant because of milk and products made from milk. The commonest pest is, of course, the house fly, which enters the buildings through doors, windows and other openings. Cockroaches of several varieties are also favored by the environmental conditions found in dairies and enter the premises in two ways: migration over the ground, along water pipes, or through sewer pipes from other infested locations; or carried in returning milk cases. In certain specialized plants other pests may be common, such as mites and skippers in cheese factories and dermestid or carpet beetle larvae in dried skim or whole milk. Still another group of insects that should be included in any sanitation program are the accidental invaders, such as gnats, leafhoppers, June beetles, and May flies, that enter buildings through their attraction to lights.

Fly Control

The principal fly of importance to the dairy plant operator is the house fly, although blow flies, blue-bottle flies and, to a lesser extent, gnats may become a nuisance. On the farm the house fly breeds principally in manure, but it can and does breed in decaying organic matter, such as piles of decaying grass and weeds and in accumulations of milk wastes, especially sour milk. The adult female fly deposits her eggs in the vicinity of food and in a few days, or even hours at high temperatures, the eggs hatch and the young maggots begin to feed. This larvae stage may last only four or five days in the summer with a complete cycle in seven or eight days. The actual amount of food consumed by flies is negligible, but the contamination of filth and disease germs carried on their hairy body makes this insect the No. 1 enemy to public health. Around the dairy plant flies not only spread disease germs, but frequently fall into containers, while their maggots may live in the crust or edge of souring milk.

The blow flies and blue-bottle flies are found less frequently around creameries, but are readily attracted to spoilage and to dead animals. Certain species of this group are unusual in that the female fly does not lay eggs, but deposits living maggots near the source of food. Tests of various insecticides against this group have not been made, but materials effective for the house fly should be effective for them.

The first and most important step in fly control is sanitation. The plant and equipment should be thoroughly cleaned at the close of each day's operation. All cans should be emptied, washed and returned or drained. Vats and containers should be covered as much as possible when the plant is in operation and should be covered when empty. It is advisable to rinse out all vats and other containers before the start of daily operations, to remove insects and rodent hairs that might have fallen in during the night. Spilled milk on the dumping and loading platforms as well as around the plant should be washed down. Returned bottles should be washed and sterilized as soon as possible and should be stacked in a clean room until used. All paper refuse, such as bottle caps and cartons, should be **burned** daily, while unburnable material should be dumped some distance from the buildings.

All windows and doors should be screened to prevent the entrance of flying insects. Whenever possible doors leading from various parts of the building into the milk, butter and other processing rooms should be screened. Screen wire of 12 mesh will prevent the entrance of flies, while 16 mesh screen wire will check mosquitos, gnats and other small insects.

The enormous amount of publicity that the new insecticide DDT has received, has lead many people to believe that this material is the solution to the fly control problem. While it does give, on proper usage, excellent results against flies, DDT should not be considered as the only necessary control measure, but more as supplementary to sanitation. DDT should be used with care around buildings where foods are processed, even though the dust and water-dispersible spray forms are not considered strong poisons. The oil-spray form is readily absorbed through the skin and should be removed with soap and water. In addition the oil-dissolved DDT may be absorbed by the butterfat in milk and should never be used in such a way as to contaminate milk or utensils in which milk is to be stored or processed.

With proper sanitation and screening of the dairy plant DDT does not need to be sprayed promiscuously around inside the creamery, but only to those areas attractive to flies. Perhaps of first importance is the painting of screens, especially the doors, with 5 per cent DDT in oil at about two weeks intervals. Second, the outside of the building adjacent to openings on the dumping, loading and unloading platforms should be sprayed with a 50 per cent water dispersible

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—DDT compared with other insecticides.
—the most effective forms of DDT—dusts, aerosols, solutions or suspensions.
—etc.

— Calendar of Meetings —

Southern PCO (7th Annual Conference), Louisiana State University, Baton Rouge, La., January 30-31, February 1, 1947.

Eastern PCO (7th Annual Conference), Mass. State College, Amherst, Mass., February 3-4-5, 1947.

Pennsylvania State PCO (1st Annual Conference), State College, Penn., February 3-4-5, 1947.

California PCO Educational Conference, College of Agriculture, University of California, Berkeley, Calif., February 10th to 12th, 1947.

Western PCO Annual Conference February 13, 14, 15, 1947. Mission Inn, Riverside, Calif.

Canadian PCO (5th Annual Conference), University of Montreal, Montreal, Canada, February 17-18-19, 1947.

Wisconsin PCO's State Meeting, University of Wisconsin, Mandison, Wisc. February 28th to March 1st.

Rutgers, NJPCA short courses; March 10-13, 1947 and March 24-27, 1947.

Purdue PCO (11th Annual Conference), Purdue University, Lafayette, Indiana, April 7-8-9-10-11, 1947.

NAIDM Meeting, Edgewater Beach Hotel, Chicago, June 9 to 11, 1947.

powder, diluted two pounds in five gallons of water and used to cover 300 square feet per gallon. If the surfaces around the openings are painted, it is advisable to use the DDT in kerosene base or DDT oil emulsion spray. Inside the building the boiler room, the bottle-washing room and other fly-infested rooms can be sprayed with these same materials, but the use of DDT in food processing rooms should be avoided if possible. DDT is a slow-acting poison, as flies die six to 24 hours after alighting upon a surface covered with the residue. Flies in the first stages of DDT paralysis may tumble from walls at any time and consequently all containers should be kept covered.

Areas outside of the building, including the incinerator and refuse dump, should be sprayed every two to three weeks after the start of the fly season, while inside surfaces not exposed to weathering will need to be sprayed every three to four weeks. At the start of the season it would be advisable to make the second application about 10 days after the first in order to build up the DDT deposit on surfaces. The best type of spray nozzle for applying DDT without excessive run-off is the flat, fan-shaped nozzle.

Roach Control

Cockroaches find the environment in the dairy plant favorable for them because of the abundance of moisture, food and hiding places. In the creamery proper roaches are usually found in benches, tables, and equipment and rarely around the floor, while the boiler room and locker rooms are ideal hiding places. All species of roaches are nocturnal and wander around over the tables, vats and other equipment at night. Roaches are not known as carriers of any disease, but they do contaminate open milk and equipment with fecal matter and occasionally by falling into vats.

Three species of roaches, the large reddish-brown American roach, the black Oriental roach and the small, tan German roach, are all found in creameries. The American species wanders over the building at night and is usually found hiding in the boiler room during the day. The German roach congregates in localized colonies in tables, benches, cabinets, behind pipes and electrical fixtures, behind door frames, in electric motors, in clothes lockers and many other places. The Oriental roach migrates through sewer pipes and enters buildings through floor drains. It lives primarily in basements. All roaches, but especially the Oriental form, have difficulty in climbing perpendicular walls made of glass, porcelain and stainless steel. The German roach and occasionally other species are carried into the creamery in returned milk cases.

Roach control like fly control is much simplified, if the plant follows adequate sanitation practices. Milk and milk products are attractive to roaches, but thorough clean-up will eliminate much available food and will tend to discourage the establishment of colonies in and around equipment. The use of insecticides can, in many instances, be confined to the basement, boiler room and locker room, if control measures are started as soon as the first roaches are discovered. Roach control should be considered as a part of the routine sanitation practices and should be definitely assigned to one individual. Many creameries contract for professional exterminating services in the control of roaches and other insects and have been well satisfied with the results.

The large species of roaches, the American and the Oriental, are readily controlled by the use of phosphorous paste. This material is poisonous and is highly attractive to these two roaches. The distribution of this bait should be in the hands of a reliable person, who should apply it to parts of the building not associated with the manufacture of food. If roaches are general through the building, a small quantity (about half a teaspoonful) can be placed on a 2 by 2 inch piece of cardboard and a number of the cards scattered in the evening as the plant is closing down. In the morning the cards can be picked up, counted and destroyed.

The German roach, as well as the other two species, can be controlled by several dust preparations. Of these pyrethrum powder is perhaps best in the creamery, as it is non-poisonous. This material kills roaches by contact and consequently must be applied to the hiding places. Another similar mixture contains pyrethrum extract and a synergist, piperonyl cyclohexenone. A new thiocyanate compound, which is considered non-poisonous, kills by contact, but has a disagreeable odor. The new insecticide, DDT, in both the 10 per cent dust and the wettable spray, gives excellent results on the American and Oriental roaches, but is no more effective on German roaches than is sodium fluoride.

Sodium fluoride, alone or diluted with 25 per cent pyrethrum powder, is the standard roach powder. This material is poisonous and should be used with care around the dairy plant. The mixture with pyrethrum has the advantage of activating the roaches as well as increasing the speed of kill. The principal objection to the use of powders around the creamery is the fact that they are either washed out when floors are scrubbed, or the damp atmosphere causes them to cake.

Sprays have never been entirely successful in roach control, as the roaches migrate ahead of the spray and are seldom hit with a lethal dose. The common pyrethrum fly spray (also called household spray) will kill roaches that it actually hits, but usually disperses them throughout the building. The same is true of the 5 per cent DDT in oil spray. In one instance we found a heavy infestation of German roaches in a locker room and in some benches. We sprayed with the DDT in oil base and two weeks later found more in the locker room, while several new locations were spotted. After six applications no further roaches could be found in the locker room, but we were then treating many new locations around the plant. Eventually we checked the roaches with this spray, but applications were necessary every two or three weeks to keep them under control.

To summarize the recommendations for roach control, phosphorous paste should be used for the American and Oriental roaches and sodium fluoride for the German roach in those parts of the building where no food is processed or stored. In food processing rooms it is advisable to use one of the non-poisonous materials.

Other Insects

The control of mites and skippers in cheese factories is a specialized problem and is well-known to operators of such plants. Dermestid beetle larvae of several species occasionally occur in dried milk and can be eliminated by sanitation and the disposal of infested stock. The larvae often breed in cracks around the floor and can be removed by a thorough cleaning of such areas. Many insects are attracted to lights at night, but should be no problem if the plant is properly screened.

Police Leap To Conclusion

Man in Cafe at 3 a. m. was No Bandit They Discover.

Baltimore, — Two policemen spotted a masked man in a downtown restaurant at 3 a. m., and noticed that the waitress usually there at closing time was missing.

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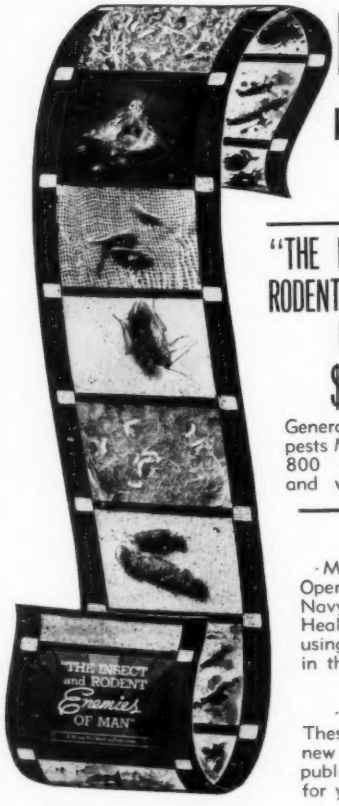

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Why Should The Pest Control Industry Cooperate?

By L. LLOYD CROSBY
President, Commonwealth Sanitation Co., Pittsburgh, Pa.

L. LLOYD CROSBY

IT HAS become more and more apparent each day (to the business man as well as to the general public) that the one outstanding feature of these, our times, is cooperation. Why? Simply because the cooperation of the many, usually results in benefits for all. Cooperation is the characteristic of this age. It is the guiding spirit of our generation. In fact, we might interpret it as vision and idealism in practise. That cooperation is no mere impractical idea or hallucination of the dreamer was eminently proved when, during the Second World War, we experienced the naive satisfaction of seeing competitors in almost every type of industry cooperate whole-heartedly for the achievement of a single objective: the winning of the war to ensure our democratic form of government. If this generous and unqualified cooperation could be achieved in time of war, then certainly there should be no reason why the same spirit of mutual assistance may not be active in time of peace.

Cooperation is a healthy state. It generates good-will and fair practices in business. It is true that cooperation does not necessarily rise from purely humanitarian motives, and I do not intend to convey this impression. In business this would be unrealistic thinking. Its basis is founded on the principle of self-preservation and, instinct for survival — not however, in the sense of jungle law of existence — but as directly applicable to the survival and common interests of a group. In this article, of course, we are referring to the Pest Control industry as a group.

The day when the business man proceeded on his own way, totally unconcerned with others in the community has passed. I should say, rather, that this spirit is merely in the process of passing away, for there are still a few who follow the principle of self-gain and self-aggrandizement to the utter neglect and exclusion of the welfare of competitors and well-being of the business they are engaged in. The business man who plays fair with his competitors invariably attains an excellent reputation and sound standing in the eyes of other reputable concerns and the general public. Surely, no better reasons than these could be cited in favor of fair-play tactics. If we are unconvinced of this, then let us look into the business activities and industrial life of our own community. Now, that we have given our community careful attention, is it not a fact that the business concerns who enjoy a fine reputation have not only been fair to the public they serve, but are also looked up to by their own competitors? In having worked together (or, at least not against one another) the business men have expanded the trading influence of the community. They have avoided captious criticisms of competitors by a truly cooperative spirit. Finally, their own successes have been multiplied without detrimental influence to competitors or the common welfare of the community.

Competitive bidding is, indeed, the very life-blood which nourishes our system of free enterprise in America. By all means, we should favor and strongly urge the vigorous encouragement of bidding. Fair bidding is almost always synonomous with fair practices towards competitors and a reliable indication of the competency of the organization in its dealings with the public and its customers. It might be well to add that a good reputation is gained, not by low prices and rock bottom bidding, but, by the integrity of the organization which is based on a competent personnel and certain high standards of services it renders. Rock-bottom bidding entails haphazard methods, superficial workmanship and incompetent workers.

The industrial life of America teaches us a lesson in the true meaning of cooperation. None of us lives by his own labor. Each of us lives by and with the labor of others. No man gathers raw material, manufactures it into cloth, sews it into a suit of clothes then fits it on himself. Each step in these procedures is accomplished by various industries which employ many thousands of workers. No one man could perform each of these tasks alone. No one man slaughters an animal, carves the skin, cures it for leather, then cuts and shapes it into a pair of shoes for himself. No single individual does this alone today. Each step followed in the making of a pair of shoes is likewise accomplished by groups of industries and groups of men highly skilled in their specific tasks. We could go on enumerating thousands of instances in our modern life which are similar as these cited in their divisions of duties and complexity of organization. Cooperation, voluntary or accidental, is the guiding hand in the smooth functioning of industry and business.

How many in the Pest Control business could truthfully claim success and achievement by their own labors without regard to the endeavors of others who have contributed to the industrys development? We must have the cooperation of chemical manufacturers, various State and Government agencies, manufacturers in many categories and associations. When cooperation is withheld the entire industry inevitably feels it. A striking but tragic illustration of the failure of cooperation came to my attention the other day. It happened on an island located in the South Seas. The captain of a ship narrates the story in his diary. The record tells of a seal which the crew had killed and left to remain on the ice. Immediately thereafter a large flock of birds swooped down on the prey, prepared to devour it. But the birds fell to fighting among themselves, although there was ample food for all. Finally, the strongest bird in the flock won, and they ceased fight-

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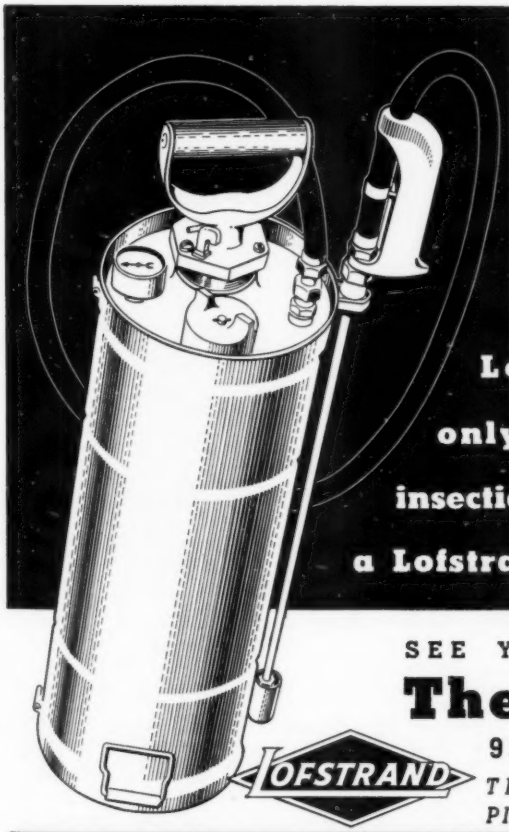

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ing. When they again turned their attention to their prey the birds discovered that the seal had frozen quite solidly on the ground. It was in vain that they attempted to tear frozen pieces of flesh from the carcass. The seal had frozen so stiffly that the talons of the strongest bird could not scratch it.

During the past several months we in the Pest Control industry have experienced some losses in our business. This year the Pest Control industry in many cities has sunk to the same level as the privy cleaners of the past. The cry of our industry seems to be: LOWER PRICES! LOWER PRICES! LOWER PRICES! The Pest Control operator is doing little, if anything, to elevate his business to a higher level. So long as the industry continues to stress low bids, rather than fair charges for expert workmanship, the Pest Control industry may soon find itself in a tenuous financial position. Here, again is why cooperation is urgently needed, not next week, not tomorrow, but today. I do not imply that it can be done in one day. The price of progress is study, hard work . . . . . cooperation. But, we must begin now.

Competition, however, is not based solely on fees. A job well done at fair prices is the underlying policy of reputable concerns which have a proven record of past achievements, the spirit of progressiveness and fair practice in its daily activities.

It is not unreasonable to assume that an organization because of low bids must perforce fail to give proper attention and comprehensive service it contracts. A job which arouses dissatisfaction places all in the industry under embarrasing surveillance and is a reflection on its business ethics and competency. The out-bidding of one's competitors (as the sole factor) is following the line of least resistance and is one of the easiest methods of getting business. However, business records conclusively prove that this may often be the means of frightening away repeat business when low bids forces an organization to give inferior service and unsatisfactory workmanship.

In judging competency and reputation of any organization the personnel must be taken into account. The concern that employs an adequate number of workers with proper experiences, skills and necessary qualifications will perform its services to the ultimate satisfaction of the customers served. Obviously, the business thus operated must ask a fair price in order to ensure attractive salaries to its employees, who have been selected for their intelligence, skills and competency in the Pest Control industry. The prospects of good wages draws a higher type of man and skillful workman. The continued assurance of a lucrative livelihood impells the worker to do his best to the satisfaction of employer and customers. In any event the business which employs individuals at good wages ascertains, by reason of its policy of high standards of service and workmanship, that the workers be worthy of their hire.

Today, the Pest Control industry is regarded as absolutely imperative to cleanliness, health and sanitation of communities. It is widely recognized as an institution devoted to public service. Consequently, the demand for our services is constantly growing. This realization should give us a feeling of pride and drive us to a higher and greater endeavor in our standards of services.

We must bear in mind that the suspicions of the public, your customers, are aroused when two or three representatives of the Pest Control industry are called in for competitive bidding and a wide variance of fees are quoted. Now, bids could, of course, vary within certain degrees of reasonableness as, no doubt, some concerns may by methods and techniques of their own and use of highly skilled personnel perform adequate service at lower fees. However, when services are of a high standard the discriminating client is not too closely concerned with the difference in fees charged.

The objectives for which we should strive are very clear and can be summed up in very few words. Our aims are higher standards of service,, fair practices among competitors and honest fees. I believe these are worthy goals for us, in the Pest Control industry, to keep in mind.

Notices of Judgement Under the Insecticide Act

Adulteration and misbranding of "Laymon's Roach & Ant Food." U. S. v. Herman B. Laymon, trading as World's Products Co. Demurrer to defendant's plea in abatement, sustained... Plea of guilty. Fine $50. (I. & F. No. 2350. I. D. No. 7660.)

Adulteration and misbranding of "Harris' Original 'Ant Buttons," U. S. v. Harris Products Co., Inc. Plea of nolo contendre on count one. Count two nol-prossed in consideration of defendant's stipulation to change composition and labeling. Fine $50. (I. & F. No. 2292. .I. D. No. 2172.)

Misbranding of "Mirra Moth Immunizer." U. S. v. 1,003 quart bottles, more or less, 199 one-half gallon bottles, more or less, and 81 gallon bottles, more or less, each containing and labled "Mirra Moth Immunizer." Upon admission of the allegations in the libel the court issued an order permitting relabeling of the goods and their return after relabeling to the shipper. (I. F. No. 2363. I. D. Nos. 9076, 9082.)

Misbranding of "Boyles '3B' No. 106 Moth Crystals," misbranding and adulteration of "Boyer's '3B' Stainless Fly Spray and Killer," misbranding and adulteration of "Boyer's Kill-Em-All Ant Killer Powder," and misbranding of "Boyer's Kill-'Em-All Fly Killer Liquid.55 U. S. v. The Boyer Chemical Laboratory Company, a corporation... Plea of Guilty. Fine $100 and costs. (I. & F. No. 2353. I. D. Nos. 2387, 7198, 7197, 7200, 5831.)

Misbranding of "Daigle's Roach Pies." U. S. v. Gillis A. Daigle, doing business under the style and trade name of Daigle's Products. Plea of guilty... Fine $25.. (I. & F. No. 2377. I. D. No. 7624.)

Adulteration and misbranding of "Greater New York Powder Brown No. 1." U. S. v. Abe Mann and Harold Kaplan, co-partners, doing business under the style and trade name of Greater New York Exterminating Company. Plea of guilty. Fine $150. (I. & F. No. 2362. I. D. No. 5524.)

Misbranding of "Jaygol Roach Abolisher." U. S. v. 181 dozen 14-ounce bags of "Jaygol Roach Abolisher." Decree of condemnation, forfeiture, and destruction. (I. & F. No. 2379. I. D. No. 10050.)

Examination of a sample of "Jaygol Roach Abolisher" showed that the product consisted of 99.44 per cent boric acid and 0.56 per cent inert ingredients.

On February 28, 1945, the United States attorney for the Northern District of Georgia, acting upon a report by the Secretary of Agriculture, filed in the district court a libel praying seizure for condemnation and confiscation of 181 dozen bags of "Jaygol Roach Abolisher," at Alanta, Ga., alleging that the product had been shipped in interstate commerce, on or about December 6, 1944, by the Jaygol Products Corporation, from Brooklyn, N. Y., and charging that the product was a misbranded insecticide within the meaning of the Insecticide Act of 1910.

The "Jaygol Roach Abolisher" was misbranded in that the label stated,

(1) "Jaygol Roach Abolisher. This product when used according to simple directions is guaranteed to absolutely abolish forever infestations of roaches and water bugs,"

(2) "Harmless to humans and pets—Is non-poisonous to humans and house pets, could be used safely everywhere,"

whereas the product when used as directed, would not absolutely abolish forever infestations of roaches and water bugs, and the product was not harmless to humans and household pets and could not be used safely everywhere.

On March 30, 1945 no claimant having appeared, judgment of condemnation and forfeiture was entered, and it was ordered that the product be destroyed by the United States marshal.

Washington, D. C., August 29, 1946, *United States Dept. of Agriculture.*

Charlie McCarthy

You know, Bergen, all you have to do to catch mice is to feed them spinach and other foods containing iron.

What's the idea?

It's simple. When he gets enough iron in his system, you just drop a magnet down the hole and you got 'im.

Reliable • • • • *Non-poisonous* • • • • *Efficient*

SPECIAL PYRETHRUM POWDER

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Household Pests

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Economical to use, it permits a good profit while doing a first-class job. Preferred for many years by most exterminators. Write for full information and prices today.

Also manufacturers of the Pyrethrum and DDT Concentrates — "Pyrocides" and "Multicides"**

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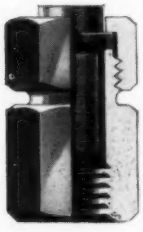

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DDT is effective in proportion to the thoroughness in which it is sprayed. Spraying Systems Flat Spray Nozzles provide perfect distribution. Already proved by use throughout the U.S.A. and world-wide war zones. Write for complete information.

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SPECIALISTS IN SPRAY NOZZLE DESIGN AND MANUFACTURE

PHOSPHOROUS PASTE

FOR ROACHES and RATS

SINCE 1874

J-O Phosphorous Paste is so compounded as to eliminate the hazard of fire and possesses advantageous qualities peculiar to itself. A properly made **Phosphorous Paste** such as **J-O** is absolutely safe to use. It cannot burn or set fire to other substances.

Phosphorous, however, remains basic in the compound because it is the most toxic chemical used in pest exterminating, being more toxic than arsenic, strychnine or thalium. Approximately one-tenth of a grain will kill a rat. Phosphorous is a slow poison, taking from 6 to 18 hours to kill. Due to its slow but positive action, the rat succumbs to this poison. He becomes very uncomfortable and, seeking fresh air and water, in most cases, leaves the premises and dies in the open.

For all species of roaches, this product is **UNEXCELLED.**

JOHN OPITZ, INC.

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Manufacturers of Exterminating Products Since 1874

Charlie Pomerantz has made a career and an art of professional insect chasing

What Makes a Bug Man Tick?

By SIDNEY FIELDS

I CAN find the solution for all your problems." Charles Pomerantz talking, a pink-faced, gray-haired little man, who does strange things to the King's English and gets into stranger places.

He gets in the hair of your dog, under the cellar floor, in the cracks of kitchen walls, right into the sockets of your lamps, and even down into bank vaults.

Pomerantz is always after bugs and pests, the seventeen to twenty-five different kinds that colonize home, office, factory or anything man erects over and under the ground. They are the "problems" for which he is always finding the "solution."

But don't call Pomerantz a mere exterminator. He insists on the more streamlined handle of Pest Control Operator.

If you are inclined to snicker at Pomerantz and the 2,000 other pest control operators in his fraternity, just remember that you pay them $30,000,000 each year to hunt down and wipe out the varieties of bugs and pests that are always with us.

That's the bill. What's the damage?

Rats alone spread $250,000,000 worth of ruin each year, and eat up another $25,000,000 in food. Moths devour $200,000,000 in fabrics annually. Termites drill away $40,000,000 worth of buildings each year. The figures do not include the cost of replacement and reconstruction, or the hell raised by Rat Mites, Mice and Roaches, Bedbugs, Waterbugs and Cereal Bugs; Book Lice, Carpet Beetles, and Powder Post Beetles; Ants, Silverfishes, Flies, Mosquitoes, and Ticks. With one pest or another the damage adds up to a cool billion dollars a year.

Well, those are the bugs. What about the bug men? Their counter-attack against bugs is constant. The pest control operator has launched an offensive to achieve professional stature and a measure of dignity. Eight hundred of them are banded together in the National Pest Control Association. They hold annual conferences in such halls of higher learning as Purdue and Louisiana State Universities, Massachusetts State College, and the University of Montreal. The association has persuaded five colleges and universities to include short courses on pest control in their curricula.

Charles Pomerantz holds no office in it. He has a burning and articulate interest in ticks and reads learned papers to the annual Pest Control Conference, and addresses such austere bodies as the dermatologists at the Skin and Cancer Hospital in New York, and the Veterinarians' Association.

The Pomerantz papers before scientists are models of restraint. They deal with such topics as "Ticks in Relation to the Human Being," and "Ticks and Disease." His speeches to pest control operators are a little flashier. Typical subjects are "Pitfalls of a Tick Job," and "America Under an Invader's Bite—No Dog or Home is Safe From the Tick."

For all his fifty years Pomerantz is still the bouncing Boy Wonder of the pest control industry. He has only been pest controlling the past nine years.

He operates his business from a dingy little store and cellar on Manhattan's lower West Side. But he has six men who handle fifty jobs a day, with fees running from $5.00 to $1,000 for each job. Among his accounts are Park Avenue mansions, city apartments, churches, suburban high schools, kennels, warehouses, print shops, and even a university.

Between a grammer school graduation and pest control, Pomerantz was sucessively an aspiring concert violinist, a stuffer of teddy bears in a doll factory, a manufacturer of ladies' ready-to-wear coats. He gave up the violin because he insisted that if he couldn't be like Mischa Elman he did not want to be a second-rater. Later, as a ladies' ready-to-wear man he found he was busy for four months and starving the rest of the year.

"I wanted a business which didn't have such temperamental temperatures as ready to wear," Pomerantz explains. "Something without seasonable fluctuations. Pests pay no attention to seasons."

One brother-in-law, a real estate attorney, urged him into the flourishing field of bugs. Another brother-in-law a pharmacist gave up his pharmacy and became his partner.

The devotions of Pomerantz to his pests is complete and unswerving. But there is a lyrical side to the man. His natural ardor inspires all sorts of poetical outbursts from time to time. Parting from one colleague was so full of warmth Pomerantz was certain he discerned tears in the eyes of his friend. So he felt impelled to dash off an opus on the incident entitled: *"Your Eyes Were Moist, Sir, When We said Good-bye."* This is it:

Your eyes proudly bear with manly grace
The mist of deep felt departure—not in vain
Did we in parting gently interlace
Those soft murmuring droplets with Auf Wiedersehn.

"I am devoted to poetry," Pomerantz offers shyly. "Especially Keats. I have a kinship with him. I think I get from him some of the fire in my own poetry."

But his passion for ticks exceeds his love for poetry and all other pests. A year after he embarked on pest control, Pomerantz ran into his first tick job. He remembers the encounter well.

"The complaint from the client was there was bedbugs on the wall," he recalls fervently. "My field man came back and said he was very embarrassed. No matter how much he sprayed, it didn't mean anything to this insect."

The man brought back a specimen. It turned out to be a Brown Dog Tick. Pomerantz swung into action, did some "experimental" work in the client's apartment, and began mixing formulae. The eighteenth mixture killed the tick. "This I call Formulation 18," he says proudly. "It's a secret."

From then on Pomerantz was completely absorbed with ticks. He acquired a shiny microscope, and a zeal for collecting every word written on ticks. His office is littered with slides, test tubes, enormous charts, diagrams, and illustration of ticks. He is now writing a book on the subject.

Though most of the disease-carrying ticks do not exist in great consequence east of the Rockies, the Brown Dog Tick is all over the

Protect against

TOXIC DUST POWDERS

in pest control work

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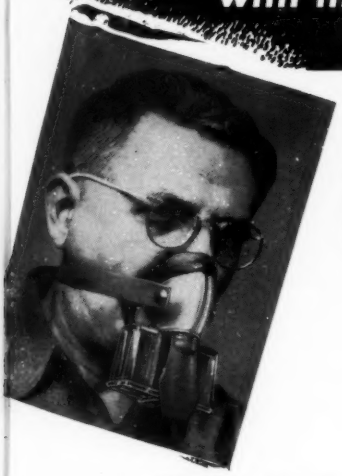

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Descriptive Literature on Request

Write for Bulletin CM-6—describing in detail the construction and service advantages of the Dustfoe Respirator.

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DISTRICT REPRESENTATIVES IN PRINCIPAL CITIES

FOR MOUSE CONTROL

USE ONLY THE BEST

Strychnine-Impregnated—Oven-Dried

(Temperature Controlled)

CANARY SEEDS

STRYCHNINE CONTENT 0.6%

Each Batch Subjected to Thorough Biological Tests for Acceptability and Kill

Guaranteed to kill mice!

Prices (F. O. B. Factory)

100 Lb. Drum	$28.00
50 Lb. Drum	15.50
25 Lb. Drum	9.00

Colors Optional at No Extra Cost

FOR RAT CONTROL

New – Sensational – Economical

ANTU PASTE

(5% Antu)

In

1 Pound Metal Containers

Ideal for Service Work or Resale—Economically Priced

65c Per Pound (F. O. B. Factory)

Packed 1 Dozen to a Carton

SHAFF LABORATORIES INC.

Mfg. Chemists

Specializing in Rat and Mouse Control Preparations

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country, particularly in densely populated areas, and loves to settle in the hide of anybody's favorite pooch. Pomerantz quotes doctors who say that Brown Dog Ticks can be disease carriers, and quickly produces one picture of a boy with a big lump on his head which resulted from the bite of a Brown Dog Tick. Pomerantz wheedled the picture from a doctor.

"I persuaded him I should have it in the interest of science and progress," he says with a faraway look. Pomerantz gets his faraway look about ticks quite often. Once, in a moment of rapture, he vented his fears in a poem called, "*Ticks and Man*:

Hath not man in his hour of proving
Enough of human woe to heal and undo,

Than await the fateful hour of his undoing
From this ill-conceived creature while in situ?

Oh, Mother Nature—inglory behold!
Is it not for man to ponder and question anew
Man's inhumanity to man untold?

But to crown his spirit with grief, by an anthropod in situ.

The Pomerantz prose on ticks is prolific. It includes articles, papers, and speeches. One title is reassuring: "*Don't Become Frightened—Ticks Can Be Cleared From Home or Dog.*" He captions an illustration of a Brown Dog Tick with an alarming: "*Look At Him. He's Bad!*" Sometimes he uses sheer whimsey for his ticks: "*Not in the Clock—The Pest That Pesters Ponto.*"

Whether it's poetry, prose, or oratory Pomerantz is ready to present the tyranny of the tick with vehemence. No customer, relative, or innocent bystander, like his partner, is safe from his constant harangues.

"Listen," he sums up the situation curtly, "My research proves that the Dog Tick sucks the blood of the dog. It leaves the dogs. It climbs into the walls and any objects in the house. So the problem is you have to have the dog and the house deticked."

Then he lowers his voice to a confidential whisper:

"The whole problem could be eradicated by washing the dog once or twice a week, and examining between the toes and inside and outside the ears, and of course you have to look over the whole body."

His wife once worried about his nights in the library and his complete abstinence from his violin. She does not worry any more.

"She knows the ticks are an emotional outlet," Pomerantz says.

Ticks are a loving luxury to Pomerantz. They are also profitable. A tick job ranges in price from $35 to $150. But his daily work deals with such mundane matters as the other pests that afflict us.

Like modern pest control operators, Pomerantz carries to his daily work the standard approach to any pest: "Survey" or "Diagnosis."

"Should you be surprised that eradicating bedbugs requires diagnosis?" he demands as his face goes pinker. "I take half a day just to look over an apartment. When it's a twenty-story factory it takes more. Then we lay out a plan of attack. If the terms are acceptable we attack."

As a matter of professional principle Pomerantz never hands out any free advice to potential customers on the phone.

"Does a doctor treat you over the phone?" he asks indignantly.

Pomerantz never puts a uniform on any of the six operators he employs. Carrying neat little black valises, stuffed with poisons, powders, insecticides, bellows, and spray guns, they always look as if they were just returning from a quiet week end in the country.

"Pschology," Pomerantz reveals tolerantly. "A man in a uniform tells all the neighbors right away that the client has bugs. The neighbors have bugs too, but who likes to admit it?"

Whenever Pomerantz goes out on any job he makes it a point to inform the superintendent or the elevator operator casually that he is merely going to do some moth work for Mrs. Jones in Apartment 10-A.

"If you tell anyone Mrs. Jones has bedbugs, it's gossip. Tell them it's roaches and they call her dirty. And if she has ticks, God forbid, she and the dog are ostracized socially and completely."

All the Pomerantz operators are men and always will be. During the war he valiantly resisted the common tendency in industry to hire women and beat the manpower shortage. Pomerantz insists he has no prejudices against women, and even admits they might have skill and finesse, and could be interested in pests.

"But," he says with sweeping finality, "a woman doesn't mind a man coming into her home no matter how it looks. But she would die first before she lets another woman see her dirty kitchen."

In his day-to-day problems Pomerantz is concerned mostly with rats and termites. Controlling them is the most lucrative part of his business.

"Huxley, that great scientist," he informs you, "once said that when man will destroy himself, the rat will inherit the earth. And why? Ask me? Because the rat is so cunning, and he gets his cunning only by his association with man. He is Public Pest number One!"

Any country with a coastline is bound to have rats. They come and go on ships. They cause greater damage than any other pest, and their material damage is a mere fraction of the cost of disease they spread.

Pest control operators rest comfortably on the thought that the rate of rat reproduction is so great they can never be pied-pipered to extinction. They reproduce four or five times a year and each of their litters is from four to ten young. The young in turn are able to litter when they are only six months old.

Pomerantz has collected a store of rat lore from personal experience with them that is nothing short of startling.

With its front or hind legs a rat will throw some dirt on the trap, spring it, and then hop over to get the food. They cause fires by eating the insulation off wires, and mess up communications.

On one job Pomerantz found that rats opened a case of eggs, and neatly removed the top layer. By the trail on the floor he concluded that one rat got on its back and held the eggs in its paw while a second rat pulled him by the tail. After a fifty-foot pull they got impatient, and broke the eggs by bouncing them. They opened the rest by dropping them down the elavator shaft.

"They are cunning enough to select their own diets," Pomerantz says in ungrudging tribute. "When we bait traps we make sure to use knife, fork and gloves. They are so clever they even sniffle out the slightest human persperation.

Pomerantz tries to outwit them by studying their habits and their diet. He baits traps with food they prefer: ground meat, fish, cheese, oatmeal, and cornmeal. He spices each morsel with a little strychnine.

But his sure-fire prescription for

A.F.C. QUALITY PRODUCTS FOR PEST CONTROL

Super Fluorex V, powerful insecticide powder

Sodium Fluoride

Poison Seeds

Carbolic Acid, Cresylic Acid, Borax, Mirbane

Pyrethrum Powder, DDT Powders and Liquids

Sterilan, mothproofing powder

FOR EFFECTIVE RAT CONTROL

Barium Carbonate, Phosphorus Paste, Rumetan, Arsenic, Fortified Red Squill Extract and Powder, Antu.

Prepared Rat Baits — convenient, ready-to-use cubes. Five different food types.

FOR TERMITES

Orthodichlorobenzene, Creosote Oil, Sodium Arsenite Powder and Liquid, Pentachlorophenol Concentrate.

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AMERICAN FLUORIDE CORPORATION

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EXTERMINATORS CHEMICALS

RUMETAN (Zinc Phosphide)

FOR RAT CONTROL

(The ideal poison for Rats, Mice and Mole Crickets Effective and Economical)

Sodium Fluoride, White and Tinted
Sodium Silico Fluoride
Pyrethrum Powder
Sodium Arsenate, etc.

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EMPIRE STATE BUILDING, NEW YORK

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PER-MO RAT PASTE

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"ANTU"

Recommended for the Control of the Common Brown Rat.

Prepared Ready for Use. No Fuss. No Muss.

Spread it on bread, crackers, or cardboard!

SAFE—Non irritating to the skin . . .

QUICK ACTING—Kills in 12 to 48 hours . . .

ECONOMICAL—Only a small amount does the job . . .

Packed in 4, 8 and 16 oz. containers . . . and in bulk. Order now for quick delivery.

Send $2.00 for generous sample.

PER-MO ALSO MAKES . . .

Per-Mo Mothproof Liquid

Per-Mo Flameproof Liquid

Per-Mo Rat Bits (Red Squill)

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Per-Mo Rat and Mice Liquid

Per-Mo Refrigerator Deodorant Bags

All PER-MO Products Can Be Packed Under Your Own Label

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STANDS THE TEST
IT'S BY FAR THE BEST

PER-MO PRODUCTS COMPANY

Original Makers of PER-MO Mothproof Liquid

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victory against rats anywhere is a complete "Rat-proofing."

"That's an art by itself," he says. "It is done with an intelligent combination of wire lath and a good mixture of cement. Without wire it's no good because rats will gnaw through cement. Rat-proofing keeps them out. The problem is they can't get in."

Rat jobs are always interesting. The termites might be dull, but they are protracted and profitable. Pest control operators love them because they have to trace the termites right down to their scource. Then they contaminate the soil under the foundation to kill the pests. One job may take weeks, and the fee may run as high as $1,000. Pomerantz did such a job in the vaults of a bank. The termites skipped the steel and, sticking to habit, gouged on the wood until they threatened the whole foundation of the bank. "And in ano'her spotless bank," Pomerantz recalls, "I found, of all things, bedbugs."

Sometimes with the lush fee comes an unexpected plum. So impressed were the officials of a New Jersey High School with Pomerantz and the Pomerantz methods on termites they invited him to address the entire student body on the subject.

And his termites demonstrate the versatility of a pest control operator like Pomerantz.

"When this insect has eaten away the wood foundation of a building," he explains, "there is immediately the problem of reconstruction. So I learned all about construction. When necessary, I can now prepare the blueprints. No extra charge."

Lesser allies of the towering termites that he contends with are powder-post beetles and carpenter ants which do considerable damage by simply adhearing to their undeviating diet of various kinds of wood.

For the roach Pomerantz has a passing fondness. He refers to it reverently as the aristocrat of all insects, for no other reason than that it antedates man by at least 100 million years. Such a fact always overpowers Pomerantz.

"With roachs," he says, " it is not a problem of damage. It is a problem of sanitation and health. They contaminate millions of dollars worth of food, and they are, of course, disgusting to people."

Though bugs are a perpetual business, they do have their seasons. Pomerantz and all pest control operators are busy the year 'round with the larger menaces: rats, mice, roaches, termites. From June to November they have their ticks. All summer they have their moths and carpet beetles, which express quite a stubborn preference for woolens.

"Then," he adds, "We have the bedbug to control, a possible carrier of disease, mind you, and, of course, unacceptable to man."

Pomerantz looks forward eagerly to the day when he can retire. He is certain it will not be too long.

"On that sublime day," he glows, "I will devote all my time to science and to chemistry, so I will know more about ticks."

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Termite Machine

The termite machine hereinabove illustrated cost $1050 to erect. In the front is a regular air compressor with a one-hundred-and-fifty pound capacity with a thirty-pound pop-off valve. An air hose may be attached to the compressor to use in case of flat tires, thus making it serve a double purpose. The trailer is mounted on four Plymouth wheels with heavy-duty tires, as regular passenger car tires would not carry the load. There are two tanks with a two-hundred gallon capacity each, one for subterrenean termites and one for dry-wood termites. The reader will note the coil spings under the rear tank. It would be impossible to use regular springs for they could not be depended on to stand up under the load when the trailer is loaded, also note the spools on the rear of the trailer for hose. The reason for the second spool is for spare hose in case of a break-down. With one hundred and fifty feet of electric wire from the compressor and one hundred and fifty feet of hose it is possible to treat any house from the street or driveway. Of course, what makes this picture really stand out is the very handsome man in the foreground, Mr. W. J. Horton, Operator of the City Pest Control Company, Jacksonville, Fla.

Mouse Kills a Man

Reggio Calabria, Italy,—Andrea Crea, 41, swung his rifle at a mouse he had been trying to catch for three days. The gun discharged and he was wounded fatally.

Advertising Rat Poison

During the war, Lt. j. g. Robert W. Militzer, a nephew of Herman C. Militzer of H. & M. Laboratories of Toledo, Ohio, after serving on the atom bomb project at Oak Ridge, Tenn., for 18 months, was transferred to the S. S. Samar in charge of the repair crew. The S. S. Samar is a repair ship serving with the Pacific Fleet.

During this service of another 18 months, the S. S. Samar put into numbers of ports and Militzer saw considerable of the Orient. While in Shanghai, he first saw the individual herewith pictured, and because his uncle is an exterminator, he decided to take this picture which he says portrays a very enterprising Chinese business man. He is a professional exterminator, or he might be called the Chinese version of a professional exterminator.

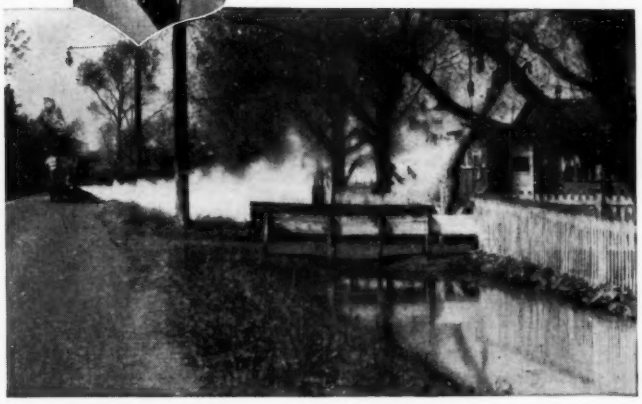
This photograph was taken during 1945 on the streets of Shanghai. The city of Shanghai is the center of China's large import and export trade. The Whang-Poo river which opens the city to the China sea, and thence to the Pacific Ocean, is lined on both sides with numerous loading wharves, and many, many warehouses are to be found near each of these wharves. These warehouses, called "Godowns" by the Chinese are storage places for all kinds of foodstuffs, rice grain, and tea being the principle items found there Being of rather fimsy consctruction, rats find that a wonderful existence is to be gained in these warehouses of the Whang-Poo river, and they grow to enormous size there. Rats the size of an ordinary Scottie dog, or a large sized household cat are not a bit uncommon there. Of course, these rats and their offspring wander away from the river banks and present quite a problem to the inhabitants of the city itself.

This wide-awake exterminator in Shanghai sells a high grade rat poison on the main corner of the town. In order to draw attention to himself and to his product, he goes down to the river about once a week and gets a few samples of his products' effect on rats. He will take ten or fifteen good sized rats, tie them securely on a strong cord, throw them over his shoulder, and set off for town to do business.

GOVERNMENT PUBLICATION

"DDT and OTHER INSECTICIDES and REPELLENTS" (Developed for the Armed Forces). This publication was prepared after 3 years of intensive investigations at Orlando, Fla., laboratory of the Bureau of Entomology and Plant Quarantine on the control of insects of importance to the armed forces. The report was originally written and issued in mimeographed form specifically for the members of our armed forces and others concerned with the problems of controlling insects and insect-borne diseases affecting military personnel and civilians in occupied territories. Although it is published essentially as first prepared, the materials and methods recommended for military conditions are applicable, with only slight modifications, for both military and civilian use under peacetime conditions. U.S. Department of Agriculture, Washington, D.C. Miscellaneous Publication No. 606, issued August, 1946.

"JUST LOOK HOW TIFA DOES IT"

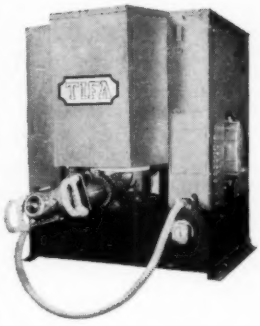


. . . DEATH DEALING FOG FOR INSECTS

TIFA discharges newly developed as well as the older insecticides, fungicides, repellents or hormones of the selected particle size in a *true fog*. This fog *spreads rapidly* over a wide area, *clings* to all objects in its path and *permeates* the smallest crevices.

TIFA's compactness and ease in handling . . . a one-man unit powered by a standard-make gasoline engine . . . enable it to be used wherever control of insect pests is essential . . . on garbage or fill dumps, in swamps, parks, resorts, orchards, barns, corrals, houses and buildings of all sizes and types . . . and for crops and livestock.

TIFA can be easily mounted on a small truck, or on a motor barge for clearing shore areas. It is QUICK . . . SURE . . . ECONOMICAL . . . and *built to last.*



Write for illustrated folder on sensational TIFA—full details on how it operates, what it does, and official comments on its astonishing effectiveness.

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the perfect base with

DDT SOLUTIONS

Maximum penetration — complete evaporation — longer floating—make *stainless, odorless* Penn-Drake INSECTI-SOL an ideal base for use with all insecticide killing agents, including solutions of DDT or low concentrations of DDT crystals. This perfect combination of special qualities guarantees complete satisfaction — best results.

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★ STAINLESS
★ LONGER FLOATING
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Representatives in Principal Cities

PCO'S Conference at University of California, Berkley - February 10-12. 1947

AGAIN the PCO's on the west coast are cordially invited to attend an educational Regional PCO Conference at Berkeley, February 10 to 12. In the Agricultural Hall on Berkeley Campus of the University.

The following program will help one to realize the valuable sessions scheduled:

TENTATIVE PROGRAM

Chairman of Conference - E. O. Essig, Professor of Entomology and head of the Division.

PRESIDING CHAIRMEN

Dr. Morris A. Stewart, Associate Professor of Parasitology and Chairman of University of California Conference Committee.

Dr. A. E. Michelbacher, Assistant Professor of Entomology, and Dr. E. Gorton Linsley, Assistent Professor of Entomology, members.

Dr. E. G. Linsley, Assistant Professor of Entomology.

Dr. R. L. Usinger,Assistant Professor of Entomology.

Dr. S. F. Bailey Associate Professor of Entomology.

Dr. Deane P. Furman, Assistant Professor of Parasitology.

GENERAL INSTRUCTIONS

Report to Durant Hotel, 2600 Durant Ave., Berkeley after 8:00 A. M. and not later than 9:45 A. M. Monday February 10th, before attending classes, to receive your Official Program and your Banquet Ticket for the Dinner and Entertainment Tuesday Night. Total charge for all activities - $5.00.

MORNING SESSION
MONDAY, FEBRUARY 10, 1947

10:00 to 10:15—Opening of Conference ..... Prof E. O. Essig

10:15 to 10:30—Address of Welcome ..... Dr. Stanley F. Freeborn, Assistant Dean of College of Agriculture

10:30 to 11:45—New Insecticides ..... Dr. W. M. Hoskins, Professory of Entomology

AFTERNOON SESSION
MONDAY—FEBRUARY 10, 1947

2:00 to 3:15—Termites—Dr. S. F. Light, Professor of Zology

3:15 to 4:30—Other Wood-Destroying Insects ..... Dr. E. G. Linsley Professor of Entomology

2:15 to 3:00—Carpet Beetles, Clothes Moths, Silverfish, etc. ..... Dr. A. E. Michelbacher

3:00 to 3:45—Rodent, Biology and Habits ..... Dr. T. I. Storer Professor of Zoology

3:45 to 4:30—Rodent Control & Inspection ..... Prof. W. S. Mangold Assistant Professor of Public Health

MORNING SESSION
TUESDAY—FEBRUARY 11, 1947

9:15 to 10:00—Insecticide Laws and Pest Control Operators. ..... Mr. Allan B. Lemmon Chief, Bureau of Chemistry - State Department of Agriculture.

10:00 to 10:45—Public Health and Pest Control Operator ..... Dean Edward Rogers, School of Public Health

10:45 to 11:45—What the University of California Can Do For The Pest Control Operators ..... E. O. Essig

AFTERNOON SESSION
TUESDAY—FEBRUARY 11, 1947

2:00 to 3:15—Wood-destroying Fungi ..... Prof. E. Fritz, Associate Professor of Forestry

3:15 to 4:30—Wood Preservatives ..... Dr. W. M. Hoskins

2:00 to 3:15—Flies, Ticks and Mites ..... Dr. D. P. Furman

3:15 to 4:30—Cockroaches, Bedbugs and Fleas ..... Dr. J. R. Douglas Assistant Professor of Parasitology

MORNING SESSION
WEDNESDAY—FEBRUARY 12, 1947

9:15 to 10:45—Pharmacy (Toxicology of Pest Control Materials) ..... Dean T. C. Daniels Dean of College Pharmacy

10:15 to 11:45—Panel Discussion of Industry Problems.

AFTERNOON SESSION
WEDNESDAY—FEBRUARY 12, 1947

At the conclusion of the conference, Wednesday noon, plans are under way to demonstrate new insecticide applicators.

Purdue PCO Conference, April 7 to 11, 1947

Owing to over-crowded housing conditions due to more than 4000 students over past high records and many new instructors, also shortage of eating facilities and the fact that all meeting places are in use for instruction, it is impossible to hold a conference during the usual period in January. Therefore, the 11th Annual Pest Control Operators Conference will be held the week of April 7th during Spring Vacation.

The Purdue Memorial Union Club will not be able to provide rooms for everyone, but we have assurance of sufficient rooms in the Fowler Hotel for those who cannot obtain room at the Union.

It is suggested that those who expect to attend the Conference make early resrvations and in so doing indicate **specifically** the day they will arrve and the day they expect to leave. **All reservations should be addressed direct** to the Purdue Memorial Union Club, West Lafayette, Indiana; or the Fowler Hotel or Lahr Hotel, Lafayette, Indiana. Where possible, double up with a friend and request a room with double bed or twin beds.

Missouri Rat Drive Worked Too Well

Gallatin, Mo.—A current rat eradication drive in Daviess County has brought to the mind of old-timers a previous rat drive that worked too well. It worked well enough—back in 1877—that the drive almost broke the county treasury.

In an effort to rid the county of rats, officials offered a bounty of 5 cents a head for each rat killed. Small boys and grown-ups saws opportunity for profit.

In all, 28,280 rat heads were collected. A total of $1,141 was paid out, and then the drive was called off, when a citizen of a neighboring county took advantage of the bounty.

According to legend, he corralled 700 rats, herded them across the line into Daviess County and scalped them, collecting $35 on the deal.

ILLUSTRATE with CUTS=

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1200 Oak St. Kansas City, Mo.

"TOX-EOL" for TERMITE CONTROL

TIME TESTED

TIME PROVED!

A large volume Termite Control Operator recently wrote us,

"Used your chemical since August, 1941, with an almost 100% efficiency . . . proud of results."

This is just one out of the many unsolicited letters we are constantly receiving proving the effectiveness of "TOX-EOL."

"TOX-EOL" Toxic base is chlorinated phenol plus. Is economical and not unpleasant to use. Effective for both wood and soil poisoning. Present cost less than creosote. Shipped in a highly CONCENTRATED liquid saving transportation charges.

Send today for advertising and dealer co-operation plan.

CRE-O-TOX CHEMICAL COMPANY

Pioneers in the use of Chlorinated Phenols for termite control.

Now located in our new plant:
2670 BROAD **MEMPHIS 12, TENN.**

MICE-GLUE

GETS MICE LIKE FLYPAPER GETS FLIES

10 lbs. $6.00 **25 lbs. $13.50** **100 lbs. $45.00**

BIRD-REPELLENT

Keeps Pigeons, Starlings and Other Birds from Buildings

10 lbs. $6.00 **25 lbs. $13.50** **100 lbs. $45.00**

PHOSPHORUS-PASTE

For Rats, Mice and the Large Brown and Black Roaches

10 lbs. $4.25 **25 lbs. $9.00** **100 lbs. $32.50**

PEST CONTROL CHEMICALS CO.

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STOP TERMITE DAMAGE

WITH

CHAPMAN *"PENTA" PRESERVATIVE*

When you are called in on a termite job the situation is always unfavorable, because it is then too late for conventional treatment of the lumber in the affected structure. Yet the same powerful chemical, pentachlorphenol, which has proved itself in lumber treatment, is available to you in convenient forms for working on existing buildings.

Chapman "Penta" Preservative can be swabbed or sprayed on sills and other wood members of the building, and this same liquid or its water-soluble counterpart, Sodium Pentachlorphenate, can be used in a trench as a soil poison to form a chemical barrier about the building.

Ask for descriptive literature and details about the use of Chapman materials in effective termite control.

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"Penta" Preservative contains *Pentachlorphenol*, a product of *The Dow Chemical Company.*

Fifth Annual Canadian Pest Control Operators' Conference, University of Montreal

MONTREAL CANADA, February 17-19, 1947

FOR THE Fifth Successive year the Canadian PCO's Conference will be held at the University of Montreal, February 17 to 19. This conference is sponsored by the University of Montreal in cooperation with the Canadian PCO's Association.

As in previous years, these meetings are in a large measure the result of effort and study on the part of leading Government and University entomologists, NPCA officials and the more energetic PCO's.

The full three day sessions will be of great interest to all PCO's who attend. All PCO's are invited to this conference whether they are a member of the Association or not. Take advantage of this outstanding conference with an excellent program as scheduled.

PROGRAM

Fifth Annual Canadian Pest Control Operators' Conference
University of Montreal,
Montreal, Canada

(This Conference to be followed by the Annual Business Session of the Canadian Pest Control Association, at the Mount Royal Hotel, 1455 Peel Street, Montreal, on February 20, 1947)

Sunday—February 16
Mount Royal Hotel—1455 Peel Street

6:00 to 8:30 P. M.—Advance Registration, Salon "D"—Mezzanine Floor.
7:30 P. M.—Annual "PRIMING Dinner, Salon "D"—Mezzanine Floor.
(Open to all who have already arrived. Regular Hotel Rates)

Monday—February 17
University of Montreal
2900 Mount Royal Boulevard

"PCO'S SPECIAL" BUS leaves Windsor Hotel (1160 Peel Street) at 8:20 A. M. and the Mount Royal Hotel (1455 Peel St.) at 8:40 A. M. sharp for the University. FREE RIDE!

8:30 A. M. HALL OF HONOR—(Main Entrance)—Registration

MORNING PROGRAM

9:30 A. M.—Lecture Room H'404—Prof. E. R. Bellemare, Presiding.
Welcome—Mgr. Olivier Maurault, Rector, University of Montreal,
Response—A. Friedman, President, Canadian Pest Control Operators Assn.
10:00 A. M.—Insect Morphology and its Relations to Pest Control—Prof. Gustave Chagnon.
Insect Internal Structure and Development and their Relations to Pest Control—Father O. Fournier.
Principles of Insect Control and Gross effects of Toxicants—Speaker's name to be published later.

AFTERNOON PROGRAM

2:00 P. M.—Professor Gustave Chagnon, presiding.
Group A—(Those who are attending the Canadian Conference for their first or second year)—Lecture Room G 804
Chemical Terminology—Demonstrations—Dr. Roger Barre and assistents.
Group B—(Included all those who have attended two or more consecutive Conferences)—Laboratory Room B 6 Building an Insect Collection—(Laboratory Session on Insect Mounting) O. Fournier, A. Robert and assistants.
5:30 P. M.—Dinner—University Cafeteria

EVENING PROGRAM

7:00 P. M.—Lecture Room H 404—A. Friedman, presiding.
The PCO, the "Applicator"—J Harvey Sturgeon NPCA President
Symposium:
The Selection of Personnel or "How to recognize the 'right man' among job applicants".—Leader to be announced later.

Tuesday—February 18
University of Montreal
2900 Mount Royal Boulevard

"PCO'S SPECIAL" BUS leaves Windsor Hotel (1160 Peel St.) at 8:40 A. M. and Mount Royal Hotel (1455 Peel St. at 9:00 A. M. sharp for the University. FREE RIDE!

9:30 A. M.—Lecture Room E 804—E. R. Bellemare, presiding.
KEEPING UP-TO-DATE IN PEST CONTROL.
(A)—NEW CHEMICALS:
A Chlorinated Hydrocarbon C_{10}-H_6-Cl_8
Toxaphene (3956)
Hexachlorocyclohexane (gammexane, or 666, or Benzene Hexachloride).
DDD—Piperonyl Butoxide—etc—
(DDT – C_{10}-H_6-Cl_8)
DDT Residual value as affected by the types of surfaces treated.
Techniques for making up emulsions
Dr. Roger Barre and Manufacturers Representatives — Andre Beaulieu Demonstration
(B)—THE APPLICATION:
What Value has Present Epuipment? (Discussion of current equipment)
Aerosols—Demonstration of various types—Dr. Alfred Weed, Leader. (questions and answers)
New Equipment, gadgets, etc.
12:15 P. M.—Conference Photograph—Steps—Main Entrance
5:30 P. M.—Dinner—University Cafeteria
(C)—New Avenues of Revenue for the PCO—(Round Table Discussion)—Charles Riess, Leader.
10:00 P. M.—Salle Doree—Mount Royal Hotel, 1455 Peel Street.
RECEPTION FOR GUESTS, MEMBERS AND THE LADIES.

Wednesday,—February 19
University of Montreal
2900 Mount Royal Boulevard

"PCO'S SPECIAL" BUS leaves Windsor Hotel (1160 Peel St.) at 8:40 A. M. and Mount Royal Hotel (1455 Peel St. at 9:00 A. M. sharp for the University. FREE RIDE!

MORNING PROGRAM

9:30—Laboratory Session—Father O. Fournier, presiding.
DERMESTID BEETLES
(A) Identification
(1) Classification and morphology.
(2) Types of injury
Dr. C. R. Twinn.
(B) Symposium on Control—H. E. Gray—J. B. Maltis and others to be announced later.

AFTERNOON PROGRAM

2:00 P. M.—Lecture Room H 404—Dr. Georges PreFontaine, presiding.
RODENT CONTROL SYMPOSIUM
E. R. Bellemare, Leader
(A) The Mouse—Biology and Control.
(B) The Rat
(1) Handling of Dead Rat Odors
(2) Questions and answers on Antu 1080 and on other Poisons.
(3) Discussion of Specific Problems Submitted by the members.
7:00 P. M.—Cardy Hall—Mount Royal Hotel, 1455 Peel Street.

ANNUAL BANQUET.

Thursday—February 20
Salon "F"—Mount Royal Hotel

9:30 A. M.—Annual Business Session of the:
CANADIAN PEST CONTROL ASS'N.
Report of Officers
Report of Committees
Election of New Board of Directors for 1947-48.

LADIES PROGRAM

A Special Program is being prepared for the Ladies, complete with tour of Mount Royal and a sleigh-ride if the weather permits. Details will be ready soon.

HOTEL ACCOMODATIONS

MOUNT ROYAL HOTEL, 1455 Peel Street, Montreal, Que.
Double Rooms only (Twin and Double Beds) $4.40 per person (average)—(All rooms with bath.)

WINDSOR HOTEL, 1160 Peel Street, Montreal, Que.
Double Rooms only (Twin and Double Beds) $3.25 - $3.50 per person.—(All rooms with bath.)

QUEEN'S HOTEL, 700 Windsor Street, Montreal, Que.
Double Rooms only (Twin and Double Beds) $3.00 - $3.50 per person.—(All rooms with bath.)

FORD HOTEL, 1425 West Dorchester St., Montreal, Que.
Single Room $1.50 to $2.50
Double Room (Twin Beds) $2.00 to $2.50 per person.
Double Rooms (Double Beds $1.25 to $2.25 per person.
Extra large Rooms (Two Double Beds) for 3 or 4 persons, $1.50 to $2.00 per person
(All rooms equiped with Radio.)

RITZ CARLTON HOTEL, 1228 West, Sherbrooke Street, Montreal, Que.
Double Rooms only (Twin Beds) $4.00 per person.—(All Rooms with Bath.)

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TIONS BEFORE JANUARY 25 AND BE SURE TO ASK FOR A CONFIRMATION.

Each of the above hotels has set aside a sufficient number of room to accommodate everyone, but it is imperative that reservations should be made early. Should anyone encounter difficulties in securing accommodation, communicate with our Room-Officer, Mr. Andy Lefebvre, (Provincial Pest Control, 4501 West. St. James Street, Montreal, Que.) who will do his best to be of assistance.

Broadway Laughter

Two cockroaches, relates Earl Wilson, N. Y. Post Columnist, who is noted for his factual reporting, lunched in a dirty old sewer and excitedly discussed the spotless, glistening new Reuben's Restaurant—from which they've been barred.

"I hear," said one, "the refrigerators shine like polished silver. The floors sparkle like diamonds. It's so clean."

"PLEASE!" said the scond cockroach in disgust, nibbling at a moldy roll. "Not while I'm eating!"

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Rutgers, NJPCA Sponsor Short Course

For the fourth time, Rutgers University, in cooperation with the New Jersey Pest Control Assn., Inc., will be hosts to those in the Industry who wish to further their knowledge. This year, the Short Course will be concerned only with imparting sufficient information so that the average pest control operator will be able to identify all of the commonly encountered household and structural pests, as well as many others met with less frequency.

Because it is the wish of the sponsors for every student to have complete laboratory facilities, the total attendance is being held at a limit of 50. Furtheremore, these 50 students will be divided into 2 groups of 25 each, who will attend the Course at different times. The first group will hold its sessions from March 10th to 13th, inclusive; and the second group will be there from March 24th to 27th, inclusive.

Enrollment will be in accordance with the past established policy -- that is, pest control operators of New Jersey will be given first choice, and then if there is room left, others from the surrounding territory will be extended an opportunity.

The cost of the Course, which will include the four luncheons, will be $27.00, payable together with a letter requesting registration, to:

J. Edwin Sameth, Chairman
1060 Broad Street
Newark 2, New Jersey

Each student will make his own railroad and hotel reservations. A small number of rooms are being held for those wishing to attend by Mr. Edward Roberts, Manager of the Roger Smith Hotel, New Brunswick, New Jersey. Here again, those first applying will be taken care of.

Judging from the amount of interest already exhibited prior to release of any publicity, the Course will again be over-subscribed.

Government Publications

Sanitation of Frozen Foods. James A. Berry. AIC-120. Western Regional Research Laboratory, 6 pp. Processed.

List of Publications and Patents of Division of Insecticide Investigaton, April 1 to Aug. 31, 1946. 3 pp. Processed.

Toxicity and Potential Dangers of Methyl Bromide with Special References to Its Use in Chemical Industry, in Fire Extinguishers, and in Fumigation. W. F. von Oettingen. Bulletin 185. 41 pp. Paper 15 cents.

The above publications may be obtained from Superintendent of Documents, Government Printing Office, Washington 25, D.C. Where a charge is indicated, send cash, (no stamps).

Sex Triumphant

An American boy just back from India is authority for this story: The British in India were unable to cope with the malaria mosquito there and had given up trying when the American forces came in. American entomologists went to work and came up with an ingenious little method. They recorded on discs the mating call of the female anopheles, a call so high pitched the human ear cannot hear it, installed the disks and the requisite player in cages set up throughout the area, and played them. The males would come in and be trapped. The males, however, do not carry the disease, as the female is the biter, but the result of the ruse eventually was to wipe out the mosquito crop.

— Marcia Winn, Chicago Tribune

Two Birds With One Stone!

On a recent broadcast, Jack Benny, talked about a mousetrap that caught two mice. How was it done? He baited the trap with Mistletoe!

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RATS RUN FROM SKUNKS

That's why RATGON can rid homes, farms, and business property of rodents. RATGON is the cultured extract of live skunks. Humans can't smell it but Mr. Rat can! Non-poisonous, this remarkable rat repellent increases in sales volume daily.

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Additional Patents Relating to Pest Control

By DR. R. C. ROARK.

2,406,294 (Aug. 20, 1946; appl. June 27, 1945). INSECTICIDE. James W. Hanson and Carroll C. Cassil, Berkeley, Calif.—California Spray-Chemical Corporation, Richmond, Calif.—An insecticidal composition contains from 2 to 5% by weight of cyclopropyl furyl propenone, about 1% by weight of a wetting agent, and an inert powdered solid carrier.

2,406,314 (Aug. 27, 1946; appl. Nov. 7, 1943. DEODORANT DISPENSING DEVIE. Stephen J. Benn, Philadelphia, Pa.

2,406,507 (Aug. 27, 1946; appl. Feb. 5, 1945). VENTILATING AND DEODORIZING TOILET. Fred L. Owens, Richmond, Calif.

2,401,658 (June 4, 1946; appl. Jan. 13, 1943). CHEMICALS. Philip T. Paul, Naugatuck, Conn.—United States Rubber Co., New York, N. Y. — These hydroxyl-alkyl substituted N,N'-diaryl arylene diamines are useful as insecticides.

2,402,016 (June 11, 1946; appl. Oct. 2, 1944). SULPHONIUM SALTS. Edgar C. Britton and John N. Hansen, Midland, Mich. — Dow Chemical Co., Midland, Mich. — Among the compounds claimed are the dimethyl-ethyl sulphonium salt of 2.3.4.6-tetra-chlorophenol and the tri-(2-hydroxyethyl) sulphonium salt of pentachlorophenol. These are useful as insecticides and fungicides.

2,402,402 (June 18, 1946; appl. Nov. 16, 1942). APPARATUS AND PROCESS FOR PRODUCING FOG OR SMOKE. Kenneth C. D. Hickman, Rochester, N. Y. — Distillation Products, Inc., Rochester, N. Y. — The patentee claims a substance having a harmful action on the animal organism may be mixed with the sources of fog or smoke and vaporized therewith in the manner indicated. Thus, two parts of gasoline may be mixed with five parts of number 2 fuel oil and one part of rotenone or extract of derris root. This mixture is passed through a fog-producing material, i. e., the fuel oil, and is conveyed to crops to kill insects thereon.

2,402,623 (June 25, 1946; appl. June 24, 1943). (N-NITROARYL HALOARYL-SULPHONAMIDES. William F. Hester, Drexel Hill, Pa. — Rohm & Haas Co., Philadelphia, Pa. — N-4-nitrophenyl, 3,4-dichlorobenzensulfonamide is claimed. Dusted on water at the rate of 7 ounces per acre it killed 72 percent of mosquito larvae. It may be used with rotenone, pyrethrins, nicotine, etc.

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SAN FRANCISCO 3, CALIFORNIA

2,402,641 (June 25, 1946; appl. Oct. 31, 1940). PRODUCTION OF ARYL THIOLS. Wilbur A. Lazier, New Castle County, and Frank K. Sigaigo, Wilmington, Del. — E. I. du Pont de Nemours & Co., Wilmington, Del. — A process for producing an aryl thiol comprises catalyctically hydrogenating the oxygenated sulfur group of a compound of the class consisting of aryl sulfonic acids, sulfinic acids, the thio analogs of these acids and substances hydrolyzable to said aryl sulfonic and sulfinic acids and their thio analogs, at a temperature between 100° and 300° C. The aryl thiols are useful as insecticides.

2,402,665 (June 25, 1946; appl. Nov. 12, 1942). CHEMICAL PROCESS. William J. Peppel and Frank K. Signaigo, Wilmington, Del. — E. I. du Pont de Nemours & Co., Wilmington, Del. — A process for the production of a hydroxythiol comprises reacting an aliphatic hydroxymultisulfide with hydrogen in the presence of a sulfactive hydrogenation catalyst. These are useful as insecticides.

2,406,761 (Sept. 3, 1946; appl. Nov. 3, 1944). INSECT EXCLUDING MEANS FOR SLIDING WINDOWS. Floyd E. Golkowski, Cleveland, Ohio.

2,407,041 (Sept. 3, 1946; appl. Oct. 10, 1941). INSECTICIDE. Benjamin H. Thurman, Charlotte, N. C. — Benjamin Clayton, Houston, Tex., doing business as Refining, Unincorporated. — An insecticide of the stomach poison type consists essentially of an aqueous dispersion of crude cottonseed oil phosphatide and a stomach poison comprising nicotine sulfate and finely divided slightly soluble calcium arsenate, the proportions of phosphatide, nicotine and calcium arsenate ranging between approximately 1 part phosphatide and ¼ to 2 parts nicotine sulfate to ½ to 8 parts calcium arsenate.

2,407,205 (Sept. 3, 1946; appl. Feb. 11, 1943). INSECT REPELLENTS. Benjamin G. Wilkes, Wilkinsburg, Pa. — Carbide and Carbon Chemicals Corp., New York. — A method of repelling insects includes applying to a zone to be treated an insect repellent comprising as an essential repellent ingredient thereof 2-ethylhexanediol-1,3.

2,407,379 (Sept. 10, 1946; appl. Dec. 22, 1941). COMBINATION BACTERICIDAL AND ILLUMINATING LAMP. Walter Bertram Morehouse, Auburndale, Mass.

2,407,508 (Sept. 10, 1946; appl. Apr. 26, 1944). UNSATURATED BICYCLIC CARBONYLIC COMPOUNDS AND THEIR PREPARATION. Rupert C. Morris, Berkeley, and Edward C. Shokal, Oakland, Calif. — Shell Development Co., San Francisco, Calif. — One of the compounds claimed is 2-methyl,2-acetyl, bicyclo (2,2,1) heptene-5,6, which is useful as an insect repellent.

2,407,565 (Sept. 10, 1946; appl. Apr. 17, 1942). ZINC MERCAPTIDE-AMINOTHIAZOLINE REACTION PRODUCT. Roger A. Mathes, Akron, Ohio — The B. F. Goodrich Co., New York, N. Y. — The patentee claims the reaction product of a 2-aminothiazoline with the zinc salt of 2-mercaptothiazole which may be used as an insecticide and fungicide.

2,407,632 (Sept. 17, 1946; appl. Nov. 11, 1944). SCREENING MATERIAL. Camille Dreyfus, New York, N. Y. — This invention relates to window screens woven of threads of artificial filamentary materials possessing high tenacity and improved dimensional stability.

2,408,307 (Sept. 24, 1946; appl. Sept. 27, 1945. Original appl. Dec. 7, 1943). INSECTICIDE. Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C. — The United States of America as represented by the Secretary of Agriculture and his successors in office. — A method for destroying insects comprises subjecting the insects to the action of acetophenone semicarbazone.

2,408,389 (Oct. 1, 1946; appl. Sept. 4, 1944). N,N-DIETHYLBENZAMIDE AS AN INSECT REPELLENT. Samuel I. Gertler, Washington, D. C. — An insect repellent composition comprises N,N-diethylbenzamide incorporated in a carrier selected from the group consisting of a dusting powder and a suitable non-toxic solvent. Compositions of this are particularly effective as repellents against the Aedes aegypti.

2,408,978 (Oct. 8, 1946; appl. Feb. 3, 1943). WOOD PRESERVATIVES. Bror Olof Hager, Stockholm, Sweden — Bolidens Gruvaktiebolag, Stockholm, Sweden. — The following is an example of a preservative composed according to the present invention.

	Per Cent
$Na_2Cr_2O_7.2H_2O$	14
$Al_2(SO_4)_3.18H_2O$	16
$ZnSO_4.7H_2O$	7
$Na_2HAsO_4.7H_2O$	15
$H_3AsO_4.½H_2O$	18
NaF	7
$Ca(NO_3)_2.4H_2O$ or $MgSO_4.7H_2O$	23
	100

2,409,124 (Oct. 8, 1946; appl. Oct. 19, 1940). PREPARATION OF ACRYLONITRILE. Ralph V. Heuser, Glenbrook, Conn. — American Cynamid Company, New York, N. Y. — A process of preparing acrylonitrile comprises reacting acetylene and hyrdocyanic acid in an aqueous solution of a cuprous halide as a catalyst at a temperature within the range of 60° to 110° C.

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ILLUMINATED MODEL
AS ILLUSTRATED
5 POWER $10
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USES STANDARD FLASHLIGHT BATTERY AND BULB
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DOUBLETS $6
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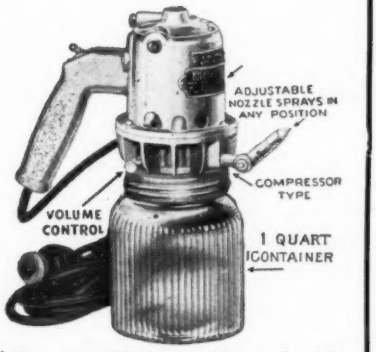

Compressor and Power Types Available

WITH its adjustable nozzle for spraying in any position, and volume control, the MISTMASTER Compressor Type Sprayer is adaptable to various SPACE spraying needs. It sprays a fine mist which remains suspended in enclosed space or room. It operates by compression. Container for one-quart or one-gallon capacity. Operated by ⅛ or ⅓ h.p. universal motor. Complete with plug-in cord.

For RESIDUAL spraying, the MISTMASTER Fan Type Sprayer is used. It shoots liquid insecticides in concentrated volume at distances of from 18 to 40 feet. Motor driven fan, operating at high speed, supplies air power for effective spraying and penetration of insecticides into crevices, corners and cracks. Three models: ⅓, 3/5 or 1 h. p. universal motor. 1-gallon spray tank. Complete with plug-in cord.

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WHAT'S NEW IN PEST CONTROL-PERSONALS

Congratulations!

Prof. J. J. Davis, Chief in Entomology, Purdue University, and one of the Industry's staunchest friends, and Mrs. Mary B. Bloss were married in the Central Presbyterian Church, Lafayette, Indiana, on December 28. Mrs Davis is the mother of two sons by a former marriage. Named Bill and Bob respectively, the boys are in that age order as well, the former, interestingly enough, being a cadet at West Point. Heartiest felicitations to Professor and Mrs. Davis and sincere wishes for a full measure of every happiness.

Self-Respecting

At a meeting of the Cambridge Entomological Club, held on December 26th in Boston, Dr. Clarence H. Kennedy, of Ohio State University, presented the results of fifteen years of research upon ants and termites, in which the ants came out the winner.

Dr. Kennedy's address, in effect, was a considerable attack on the termite and its economy—a rather unfair contest, considering the relative size of Dr. Kennedy and a typical termite.

The termites, Dr. Kennedy said, are messy feeders, tend toward cannibalism and depend on parasites for their sustenance. A large proportion of the population cannot eat at all, and have to be fed by young termites, either by eating the youngsters when their backs are turned or demanding that they supply pre-digested food.

The young termites, in turn, depend on hordes of protozoa in their stomachs for their nutrition. The termite does the first part of the job by swallowing wood, which it delivers to the protozoa in its stomach. The protozoa then digest the wood, and the termite lives on the products of that digestion.

Ants, on the other hand, are quality insects, working hard for their food, eating it themselves and burying their dead tidly in community graveyards.

Condolence

Another pioneer of the Pest Control Industry in Eastern Canada has suddenly passed away. William E. Mackie of W. E. Mackie and Sons, Ltd., Halifax, N. S., Canada, after a few hours illness died December December 23, 1946.

"Bill as known to many of his friends was noted as a keen honest competitor, and a staunch, loyal, true friend of the industry. His influence exemplified in deeds that reflected action with a sincere purpose, played a large part in making the Canadian Pest Control Operators Association more respected.

Surviving are his wife, two married daughter and two sons, Ernest and Everett who will carry on the pest control business. We express our deep sympathies to the family.

DDT Price Cut Again by du Pont

Wilmington, Del.— E. I. du Pont de Nemours & Co. today announced the sixth price reduction since 1944 in DDT, the insecticide ingredient, effective Jan. 1, 1947.

Technical grade DDT in carload lots will be cut 2½ cents to 45 cents a pound. Less-than-carload lots will be reduced from 43 to 45 cents, and less than-ton-lots from 50 to 48 cents a pound.

The new basis will compare with a price of $1 a pound, established when the company started commercial production two years ago. In 1943, when DDT was manufactured on a small, semi-works scale, the price was $1.60 a pound.

The Osers

Occasionally we come across items of interest regarding the background of some of our PCO's and their family histories. In this particular instance we believe you will enjoy learning something about Mr. Maurice Oser and his family.

Having been employed by his uncle Otto Orkin of Orkin Exterminating Company, Maurice organized the Oser Exterminating Company in Denver, Colo., in 1936. His fathe, Barnett S. Oser, known as "Pop", seventy years of age, but still young and active, is associated with him, having charge of the fumigation and termte d-vsions.

Maurce has three sons: Hessell, 23 years old, is in the sales and service depatment. He wa married, January 15, to Maxine Barr; Hamilton, 22 yeas old, is an actor in California. Curly haired and built like a foot ball player, Hamilton got his big chance when he won a state-wide talent contest a year ago. He has a comedy lead in "Kansas" scheduled to open in Los Angeles the first of the year, and also has a movie contract pending. He spent three years at the University of Denver, where he appeared in 23 plays. He also studied at the Pasadena playhouse and the Goldman Theater School in Chicago. Comedy roles are his favorites; Julian 20 years old, the youngest and the hardest working member of the family (with the exception of "Pop"), is in charge of the service department and is the trouble shooter for his father's business.

Ted Oser, general manager of the Orkin Exterminating Co., whom we all know and love as our most recent past NPCA president, is Maurice's brother. Maurice has built a splendid pest control business in Denver. We understand that he enjoys visiting his friends around the city and can seldom be found in the office. Having such fne sons to look after the operation of the business, makes it possible for him to indulge in such a pleasant hobby.

Dr. Robert C. Haring

Dr. Robert C. Haring, for the past 13½ years associated with the National Aniline Division of Allied Chemical & Dye Corporation, has joined John Powell & Co., Inc. Dr. Haring will be connected with the company's insecticide, rodenticide and herbicide research organization.

Dr. Harng, who holds a B. S. in Chemical Engineering from the University of Washington and Ph.D. in Chemistry from the University of Wisconsin, is a member of the American Chemical Society, the American Association of Economic Entomologists and the N. Y. Academy of Science.

Hyman Names Five

Mr. J. Newton Hall, Sales Manager of Julius Hyman & Company, Denver, Colorado, manufacturers of the chlorinated hydrocarbon insect toxicant Octa-Klor, announces the appointment of Dr. D. E. Bonnell as head of marketing research for the Julius Hyman & Company. Dr. Bonnell was formerly an executive with Velsicol Corporation, and during the war served as Major in the Sanitary Corps.

Dr. R. E. Lidov has joined Julius Hyman & Company, Denver, Colorado, as Assistant Director of Chemical Research. Dr. Lidov held a similar position with Velsicol Corporation.

Mr. Roy J. Miller, Mr. E. Freireich and Mr. J. F. White have become associated with Julius Hyman & Company, Denver Colorado in engineering and plant development. Mr. Freireich and Mr. White were chief engineer and development engineer respectively of Velsicol Corporation, before joining Julius Hyman & Company. Mr. Miller was in charge of construction of Consolidated Shipyards at Longbeach, California and has wide experience in this field for manv years.

Julius Hyman & Company, Denver, Colorado, announces that new construction work at its Rocky Mountain Arsenal Plant is nearing completion. The initial production run of the company's chlorinated hydrocarbon insect toxicant Octa-Klor is planned for the last week in January. This plant which is the former mustard distillation unit of the Rocky Mountain Arsenal is among the most modern and well equipped in the country for the production of chemical specialties which Julius Hyman & Company contemplate manufacturing in the near future. A model chemical laboratory is maintained in connection with the plant. Research and development is now in progress in a number of important fields related to the Company's Operations.

Visits New Rohm-Haas Laboratory

The Connecticut Pest Control Association members visited the Rohm & Haas newly erected laboratorv in Bristol Pa. this week and had a very interesting trip.

The members of this association attending were as follows:

Fred Haas of Aetna Exterminating Co. of Hartford; Andy Anderson, Berg Exterminating Co. of Hartford; David Mason, of Mason Exterminating Co. of New Haven; F. E. Bohman, of Birchard System, in Hartford; Charles N. Egan of Trinity Exterminating Service, East Hartford; Thomas Ledweth of Berg Exterminating Co., Hartford, and Lester Bureau, of A.B.C. Exterminating Co. of New Haven.

Dr. Frank Maughan, Karl G. Klumpp and J. P. Nichols of the Rohm & Haas company acted as hosts for the day, and extended themselves in a very hospitable and informative manner.

The members of this organization feel that this trip was well worthwhile, especiallv through actually seeing how Lethane is manufactured. The scope of the work covered by the laboratory seems to be so diversified and extensive that it shows that Rohm & Haas are certainly well equipped to handle the problems in the world of pests.

P. W. Tells of Japan Cages

Placed on Red Ant Hills, Briton Says at Japanese War Trials

Japanese put Allied prisoners in cages on top of red ant hills, a British officer testified during December at the war crimes trial of former Premier Hideki Tojo and twenty-six other Japanese war-time leaders.

Major Michael C. M. Ringer, who passed three years in prison camps in Sumatra, said prisoners were forced to live in the

MERCK IS SERVING THE INSECTICIDE INDUSTRY AS A BASIC AND PRIME SOURCE OF SUPPLY FOR **DDT**

An aerial view of the Main Plant of Merck & Co., Inc. at Rahway, N. J.

As expanding facilities come into operation and current commitments are provided for, we are finding increasing opportunities to co-operate with manufacturers of DDT insecticides.

The product we offer is —

DDT

TECHNICAL

(dichloro-diphenyl-trichloroethane)

Setting Point 89° C. Minimum
For Manufacturing Purposes Only

Write us for prices and let us know your requirements. Please address your inquiry to the Insecticide Products Department, Merck & Co., Inc., Rahway, N. J.

DDT TECHNICAL

For the Manufacture of Agricultural, Livestock, Horticultural, and Household Insecticides

MERCK & CO., Inc. RAHWAY, N. J.

Manufacturing Chemists

New York, N. Y. · Philadelphia, Pa. · St. Louis, Mo. · Chicago, Ill. · Elkton, Va.
Los Angeles, Calif. · *In Canada:* MERCK & CO., Ltd., Montreal · Toronto · Valleyfield

MERCK MERCK

ant-hill cages for as long as ninety days on a diet of rice water. The cages were so constructed it was impossible for any but the smallest men to lie down in them.

In Belem, Brazil, according to Esquire magazine, one finds Salamanders in the bathtub, tropical insects on the bed and Boa Constrictors in the roof. About the Boa Constrictors we didn't believe it either, until we checked. They are put in the space between the ceiling and the roof, to take care of mice and rats.

Rat Poisoning Plot Is Partial Success

Flemington — The Hunterdon County agent's office has remarked that the rat extermination campaign conducted throughout the county Thanksgiving Day was a 'moderate" success.

Fifty-six per cent of the reports indicate complete satisfaction, nine per cent only partly so and 35 per cent reported poor results.

Ernest Rosso of Lebanon, R. D., reported finding 55 dead rats. Herman Lazarus of Pittstown got 37. Both used chicken mash as bait. Good results were also reported from use of hamburger, canned dog food and in one case cracked eggs. The rodenticide, Antu, developed in the war, was used.

The agent advised that inasmuch as rats develop a tolerance to Antu, it is advisable to follow up with another poison, such as phosphorous compound.

About Cats and Mice

While Pvt. Richard Becker of Lowry Field was phoning from the USO Club on California St. last night, his pet white mouse "George" surreptitiously climbed out of the soldier's pocket and dashed madly for what looked like home.

Home, however, only proved to be the coin return slot on the phone, and by the time George's wanderlust had cooled the phone was out of order and George found himself trapped in the nickel compartment between Thomas Jefferson and an Indian. A telephone worker was called to extricate George.

Sanitation Films

Volume 1, No. 20, of the newsletter of the Industrial Research Foundation, Louisville, Ky., contains a suggested list of films that could be used in establishing a training course for sanitation personnel, to supplement the films series currently being prepared by the institute.

Bob Burns

If it wasn't for radio I'd still have the same job I had when I first came out here, —grape squeezer for the San Fernando Winery. I used to jump up and down barefooted in a big tub of grapes.

Oh, Robin, I don't believe it!

It's the truth. I've still got the purplest feet in Canoga Park.

You're fooling!

No, I ain't. Why in those days when mosquitoes used to bite my toes, it wasn't their buzzing that kept me awake— it was their hiccuping!

DDT Impregnated Mantle

A novel application of DDT for killing flying insects has been developed by DDT Lite, Inc., Los Angeles. A wire screen or mantle to which is attached a DDT impregnated white textile flocking is fitted around a standard light globe by a snap-on arrangement or special light is enveloped in the wire cage. Insects, attracted by the light, perch on the flocking, absorb DDT and fly away to die. The light must be kept out of reach of animals and children.

Dr. Hubert Frings, head of the biology department of Gustavus Adolphus College, St. Peter, Minn., offers a suggestion on making DDT more effective against roaches. He recommends in the Midland Cooperator, house organ of Midland Cooperative Wholesale, Minneapolis, that sugar or starch be sprinkled on the DDT after it has been placed around kitchen sink or on cupboard shelves. Dr. Frings explains that roaches do not taste with their feet as do flies and other insects, hence do not swallow enough DDT to make it effective. Being fond of sugar or starch, he says, they will eat and absorb the poison through the mouth.

Missing Mouse

A local practical joker sent friends boxes containing 11 white mice, with cards reading: "Hope you enjoy these 12 white mice." The recipients inevitably spend hours searching their apartments for one missing mouse.

Ant-idote

The ant villages which Delyn Hornaday of California started as a hobby 10 years ago, turned into a profitable business which promises to make him $25,000 this year alone, according to Marvin Spicer in the January issue of This Month magazine, now on newsstands.

Hornaday is convinced that his villages—glassed-in affairs in which a colony of ants perform their daily duties—have definite therapeutic value, the author relates. A Hollywood producer once told Hornaday his ant village had done more for his ulcers than all his doctor's expensive medicines.

An 11-year old boy in an iron lung had rejected all efforts to amuse him until his parents brought him an ant village. Spicer recounts. He lay quiet hour after hour watching the ants at work, and his recovery was believed to be speeded by his new interest.

"Safer Insecticide Control"

An article in the December Rohm & Haas Reporter, discusses a new insecticide known as Rhothane D-3, stating it "exhibits remarkably powerful insect-killing action along with relatively low toxicity to warm-blooded animals .... The chemical name of Rhothane D-3 is dichloro diphenyl dichloroethane. In spite of the similarity of this to the chemist's name for DDT — dichloro diphenyl trichloroethane, "Rhothane D-3," the article states, shows quite different physiological activity." ... In connection with household insection control, "The greater safety of Rhothane D-3 is helpful in many household applications of insecticides. Flies, mosquitoes, lice, bedbugs, roaches, and fleas are all killed by Rhothane D-3 with no more danger to household pets than is present with many older, is slow in action. For this reason it is usually desirable in preparing household insecticides to include with it a fast-knockdown agent."!

Moth Control Process:

A process to prevent moth damage to clothes by impregnating them with DDT has been perfected by the Whitemarsh Research Laboratories of the Pennsylvania Salt Manufacturing Company, Philadelphia, Pa., and soon will be made available to the public.

The new method, which thoroughly impregnates clothing with DDT without affecting the cloth in any way, involves a mixture of DDT and an absorbant powder and a pump percolator machine which dissolves the DDT in just the right amount in the dry cleaning solvent. The machine sprays this solution on the clothes in the dry cleaner's extractor in such a way that the treating solution thoroughly saturates the garments, so that after drying minute amounts of DDT are deposited on nearly every fiber.

Prevent Wood Rot

To prevent rot of wood, rope, canvas, and cloth products, a new product has been announced whch is described as a liquid which penetrates the fibers, waterproofing and mildew-proofing the articles. (For further data on this, write U. S. Industrial Chemicals Co., Inc., 60 E 42nd St., N. Y. 17, N. Y. Referring to paragraph #156.)

Lethelin Announces Price Increase

Because of increased costs of every ingredient that goes into manufacture of MAGIKILL JELLY ANT BAIT, a product of the Lethelin Products Co., Inc., Mt. Vernon, N. Y., the company has been compelled to increase its prices effective as of January first. In addition to increased costs, the company further states that some of the materials used in the manufacture of Magikill are in extremely short supply, but in spite of this it believes it will be able to take care of the PCO's requirements for 1947 without rationing.

Better Than DDT

Wilmington, Del.—A new insect-killing chemical, claimed to be even more effective than DDT against certain pests, is being put on the market by the Hercules Powder Company. It is chlorinated camphene, and will be sold under the trade name Toxaphene.

Detergents Clean Fruit of DDT

BERKELEY. (AP). — DDT powder remaining on apples and pears after harvest can be removed satisfactorily by washing the fruit with a mixture of detergents, Dr. J. E. Hoskins, University of California entomologist, reported today.

This problem of spray residue arose as the result of increasing use of DDT to control the coddling moth. In the last year or two the drug has been used to some extent in the place of arsenic and lead compounds.

Arsenic and lead are removed by dipping the fruit in a solution of water and acid. The acid neutralizes the poison. In the case of DDT, which is not officially rated as poisonous to humans, removal can be achieved by the addition of soaps and certain other cleansing chemicals to the water, Dr. Hoskins said.

Business Opportunities

(Classified)

RATES — For individuals seeking employment, 5c per word, minimum $1.00. All others 10c per word, minimum, $2.00. All advertisements must be in the hands of the publishers seven days before publication date and must be accompanied by cash or money order for payment in full. The publishers are not responsible for any false or misleading advertisements.

Replies to advertisements where box number only is indicated should be addressed c/o PESTS, 1200 Oak St., Kansas City 6, Mo., giving box number as well.

The C. A. Griggs Exterminating Company of 5 South Bellevieu Place, Indianapolis, Ind., a company with a good reputation, wants a PCO with some sales experience that can prove a clean honest character, starting salary $60 per week and commissions.

For sale — Well established pest control business. Located in California. Nets $10,000 a year. Price $25,000, including $15,000 inventory, trucks & equipment. Pests, Box 9.

LOCAL ORGANIZATION NEWS

Connecticut Pest Control Assn. November Meeting

The November meeting of the Connecticut Pest Control Assn. was held at the Hotel Bond, in Hartford, Conn., on Nov. 12th. The meeting opened with dinner after which an election of officers took place.

Lester Bureau, of the ABC Exterminating Co., of New Haven, Conn. was elected president. Mr. Joseph Putinski, of the City Storage Co., New Britain, Conn., was elected Vice-president, and Charles N. Egen, of the Trinity Exterminating Service, of East Hartford, Conn., was elected Secy and Treasurer.

A roll call was made and it was found that the following were in attendance:

Mr. Staubley of John Powell Co.,
George Elliott, past president of the National Pest Control Assn.
Kenneth Cook, Secretary of the New England Pest Control Assn.
Fred Haas, Aetna Ext. Co., Hartford, Conn.
Walter Heap, Abbott Pest Control of New Haven.
David Mason, past president of the Conn. Pest Control from West Haven, Conn.
O. N. Anderson and Thos. J. Ledwith from the Berg Ext. Co., Hartford, Conn.
Joseph Roog, Atlantic Exterminating Co. Hartford, Conn.
Charles F. Barbour, D.D.T. Service, Waterbury, Conn.
Neely Turner, Conn. Agriculture Experimental Station, New Haven, Conn.
Karl Klumpp, Rohm & Haas, Philadelphia, Pa.

Mr. Mason president opened the meeting, and introduced Mr. Staubly, who then gave a very interesting talk on the use of "Antu".

Joseph Putinski, Secy,

Minutes of the Connecticut Pest Control Assn. December Meeting

The Connecticut Pest Control Assn., held their December meeting at the Experimental Station in New Haven, on December 27th, 1946.

This was a special meeting called for the purpose of securing the vote of each member of this organization relative to supporting the National Pest Control Assn., which has been proposed to be held in Boston in 1950.

Mrs. Lester Bureau, opened the meeting, and this subject was given the floor, after which discussion followed and the motion was made that the Connecticut Pest Control Assn., would support the Mass. Pest Assn. in this endeavor. This information was to be forwaded to the National Assn.

Another motion was made by Mrs. Fred Haas of the Aetna Exterminating Company and seconded by Mr. Anderson of the Berg Co., that a sum be given as a prize to a student found worthy at The Connecticut State College. Mr. Neely Turner of the Experimental Station was appointed to look into this matter and report of it at the next meeting.

The annual motion was made to donate to the Eastern Conference being held in February at the Mass. State College, in Amherst to the amount of $25. Mr. Buettner of the National Assn. was to be given the check to present to the State College.

Those attending the meeting were as follows:

Mr. Lester Bureau, president, from the A.B.C. New Haven, Conn.
Neely Turner, Conn. Agricultural Experimental Station, New Haven, Conn.
Thos Ledwith and O. N. Anderson of the Berg Company, Hartford, Conn.
C. F. Barbour, D.D.T. Service, Waterbury.
Charles N. Egan, Secy. and Treas., from Trinity Ext. Ser., East Hartford.
Pete Bohman from Bichard Systems, Inc. Hartford, Conn.
F. W. Dietz, Dietz Exterminating Co., Waterbury, Conn.
Jos. Roog, from Atlantic Exterminating Co. Hartford, Conn.
David Mason, past president, from Mason Ext. Co., West Haven, Conn.
Fred Haas, from Aetna Ext. Co., Hartford, Conn.

Eastern Pennsylvania Pest Control Association Announces Short Courses For Pennsylvania Operators at Penn. State College

An exceptionally good attendance marked the quarterly meeting of the Eastern Pennsylvania Pest Control Association which was held on December 17, 1946 at the Benjamin Franklin Hotel Philadelphia, Pa. After a splendid dinner new officers were elected as follows:

President	Martin Meyer
Vice-President, Phila.	Walter Cholerton
Vice-President, Out of Town	Arthur Hamil
Secretary	R. H. Bauer
Treasurer	Walter Boohar
Director (Three Year Term)	W. C. Sharp

Great enthusiasm was displayed when "Bud" Sharp, retiring president, announced that negotiations with officials at Penn. State College had finally culminated in the inauguration of a short course to be offered to the PCO's of the State of Pennsylvania. The first course is being held on February 3rd, 4th, and 5th, and covers rodent control and the spraying of barns and stores among other subjects.

After this important announcement the meeting then proceeded with the main topic on the program which was the preparation for the 1947 Annual Convention to be held in the City of Philadelphia.

After a brief address by the National Chairman, John G. Vogel, the Local Chairman, Martin Meyer appointed his various committees and chairmanships were cheerfully accepted by the following:

Secretary	R. H. Bauer
Treasurer	J. B. Muth
Advertising	George Brehm
Booth	York King
Entertainment	Byron Kaufman
Publicity	Bud Sharp
Reception	W. R. McWilliams
Registration	A. E. Ritt
Ladies	Mrs. Martin Meyer

The ladies retired to a separate room and under the guidance of Mrs. Martin Meyer as Chairlady they laid plans for their part in the convention for entertaining the visiting ladies. The men folks continued with the selection of personnel to serve on the various committees on the basis of their individual wishes and inclinations. Overall plans were discussed for the successful functioning of the convention. To continue these preparations a number of supplementary meetings will be held, the first of which will be on January 27th.

The program was preceded by a brief meeting of the Philadelphia group who elected Mr. John G. Vogel to serve as Chairman for the coming year.

Eastern Penn. Pest Control Association

The regular quarterly meeting of the Eastern Penna. Pest Control Association was held on Dec. 17, 1947, at the Benjamin Franklin Hotel, Philadelphia, Pa. There were 38 present, including PCO'S and their wives and everyone enjoyed a very fine roast lamb dinner at 7 o'clock. After which the business meeting was called to order by President Bud Sharp.

The minutes of the Previous meeting were read and approved.

The Treasury Report was read and voted received upon a motion by Mr. Vogel and seconded by Mr. McCullough.

Mr. Sharp reported on the short course at State College. He and Mr. Montgomery of the Theo. Meyer Est. had been in conference with the officials at Penn. State College, receiving very fine cooperation, and Feb. 3rd, 4th, & 5th were decided upon as the dates for this short course. The College will be able to accomodate about 35 men. Among the subjects to be discussed at this Conference will be the spraying of barns and stores and rodent control.

Mr. York King reported for his colleagues, Mr. Joe Muth and Mr. Cholerton; the Nominating Committee recommeding the following for nomination:

President	Martin Meyer
V. Pres., Phila.	Walter Cholerton
V. Pres., Out of Town	Arthur Hammil
Secretary	R. H. Bauer
Treasurer	Walter Boohar
Director, 3 yr. term	W. C. Sharp

Upon a motion by Pete Salino, seconded by Mr. Hynak, nominations were declared closed and the recommended candidates were declared duly elected and installed as officers for the ensuing year.

Mr. Martin Meyer, Chairman of the Membership Committee, reported that application and payment of dues had been received from R. Peltz & Co. as associate member. Upon motion this application was approved and R. Peltz & Co. accepted as members.

Mr. Bud Sharp, our retiring President, expressed his sincere thanks to his Committees and Officers for their fine cooperation and at the same time pledged his help and cooperation to the new Officers.

The meeting was then turned over to Mr. John Vogel, Chairman of the Program Committee. Mr. Vogel advised the Association that even though the United Nations Organization had turned down Philadelphia as their headquarters, the National Pest Control Assn. showed much better judgement and good sense in having selected Phila. as convention headquarters for 1947 and that he had taken on the responsibility of being General Chairman for the Convention and Mr. Martin Meyer had assumed the responsibility of Local Chairman. Mr. Vogel immediately put forth the slogan for the coming year - "PHILADELPHIA MUST TOP THEM ALL" and advised the assembled PCO's in no uncertain terms that there was plenty of work ahead for each and everyone in order that this convention be successful, emphasizing the fact that there is no short-cut to success.

Mr. Meyer, as our Local Chairman, took the floor and asked for assistance and cooperation from all the members.

Because of facilities for exhibition space, the Bellevue Stratford Hotel had bee designated as the headquarters. The Hotel promised the use of the Rose Garden for

meetings and the Main Ball Room for social affairs, this arrangement being ideal because when passing through the hotel all the delegates to the convention must pass the exhibition booths.

All Committees were advised to prepare for over 700 people and 30 booths. The Chairmen were then given brief instructions as to their duties.

The subject of Convention photographers was discussed. Mr. John Vogel was requested to inquire from the National Organization as to policy in renting a booth for Convention Photographer. Committee was instructed to excercise care in selecting a photographer and to make sure that the delegates and guests would not be unduly pestered to purchase photographs.

We were also advised that Mayor Samuels had agreed to personally welcome the Convention and that in all probability Mr. Charles Grakelow would act as Master of Ceremonies.

The women, under the guidance of Mrs. Martin Meyer, Chairmen of the Women's Committee retired to a separate room there to discuss and lay plans for their part in the Convention for entertaining the visiting ladies, while the men folks carried on further discussions about the Convention.

Members were asked to give some thought to a slogan for the Convention.

Since no suggested budget has been put forth by the National Ossociation, Mr. Vogel was requested to contact the National Office and secure from them a suggested budget so that we might better regulate spenditures.

The possibility of securing both technical and after-dinner speakers to the Convention was discussed.

The possibility of securing private cars for the use of the delegats from the West and South was also discussed.

After much discussion, it was decided to invite the Rev. Poling of the Grace Baptist Temple to take charge of the Invocational Excercises at the opening of the Convention.

Since many PCO's will stay over a day or two after the Convention, the subject of post-convention activities and trips to places of interest was discussed and committee wa instructed to give this matter consideration.

It was decided to hold a joint meeting of the Phila. Assn. and the Eastern Penn. otrfqa s(wasameting tsPCeon
Pest Control Organization at a dinner meeting Jan. 27th at 6:30. Officers will make arrangements for place of meeting.

Upon a motion by Mr. Sharp, seconded by Mr. Hynak, it was decided to hold the June Meeting out of town and the Sept. Meeting at home because of the anticipated rush of convention business to take place at the Sept. Meeting. Upon a motion by Mr. Fleming, seconded by Mr. Vogel, it was decided to hold the next meeting March 18th. Upon a motion by Mr. Cushing, seconded by Mr. Cholerton, it was decided that the March 18th meeting be held at the Beniamin Franklin Hotel.

We were also advised that sh sh hhhhr Mr. Dale Fleming of the D. M. Fleming, Inc. and Mr. McCallister of the South Jersey Exterminating Co. expressed the desire to become members of the Association and the President Martin Meyer reminded the members of the procedure necessary in applying for membership. Both applicants agreed to mail written applications to the Secretary at their earliest convenience.

Mr. Bud Sharp requested the showing of hands and sixteen of the members so designated their inteitions of attending the short course at Penn. State College.

Upon a motion by Mr. Vogel, seconded by Dale Fleming, a vote of thanks was tendered to Mr. Sharp for his successful two years administration, at which time the meeting was adjourned.

St. Louis PCO's Active in Rodent Control Program

The first of a series of meetings was held on January 3rd in the Rat Control Field Office, 3843 Forest Park Ave., St. Louis, Mo., for a discussion and interpretation of the specifications for rat stoppage and related requirements under the St. Louis Ordinance 43686.

Twenty-three PCO's were present, and considering the temperature, which was 10 degrees above zero, and the streets which were solid with ice, this is a good indication of the interest the PCO's have in cooperating with the Rat Control Section.

Mr. Charles E. Trygg, Supervising Engineer of Rat Stoppage Service, opened the meeting. The specification was read a paragraph at a time, and after each reading a discussion and interpretation of that portion of the specification followed. Mr. Trygg exhibited samples of different types of materials such as hardware cloth, expanded metal and other types of material used in rat stoppage.

Many pertinent question were asked by the PCO's and Mr. Trygg and Mr. John Buxell, Chief Public Health Engineer, gave clear interpretations of points brought out by the questions. They expressed their desire to cooperate with the PCO's and be helpful in every possible way.

Mr. Buxell stated that if PCO's would submit their specifications for rat stoppage jobs to their office, that the specificatons would be carefully surveyed and recommendations made for changes in specifications where applicable. Mr. Buxell asked that prices quoted the owners be omitted from specifications submitted to them, and he assured us that all specifications received by their office would be kept confidential.

Other meetings will be held from time to time to continue the discussion and interpretations of the rat stoppage specifications.

We as PCO's should be appreciative of this fine course being offered us by the Rat Control Section of the City of St. Louis. as they are presenting to us the benefit of current practices in this field.

Submitted by, Charles Denny

Northern California Pest Control Association Inc.

The next meeting of the NORTHERN CALIFORNIA PEST CONTROL ASSOCIATION, INC., will be held at the DURANT HOTEL, in Berkeley, California, on Monday night, FEBRUARY 11th, 1947, at 6:30 P.M. This meeting is designated by the By-Laws as the ANNUAL MEETING. Assembly in HEADQUARTERS ROOM, DURANT HOTEL. 5:00 P.M.

ORDER OF BUSINESS ....

Reading of the minutes of last meeting for approval.
Reading of Communications.
Report of Treasurer.
Report of Committees.
Unfinished Business.
New Business.
Election and Installation of Officers and Directors. (President, Vice-President and 2 Directors.)

Gammexane in Argentina

Argentina is planning the manufacture of Gammexane in large quantities, under arrangements concluded between Industria Quimica Argentina Duperial S. A. and Imperial Chemical Industries, Ltd., according to Chem. & Eng. News. The plant of the former Sarandi will be the site of operations, and raw materials will be obtained at Rosario from Electrocolor S. A., jointly owned by Duperial and La Cellulosa. Duperial will handle the marketing, and ICI will furnish the technical informaton.

RESEARCH

Control of the Red Harvester Ant with Velsicol 1068

Conclusions—Solutions of Technical Velsicol

1068 controlled the red harvester ant more effectively than any material which has yet been tested. Results of this experiment show that 100 c.c. or more, depending upon the size of the colony, of a 2.5 to 3 per cent solution will destroy a nest within 24 hours. These results have been further verified at the Oklahoma Agricultural Experiment Station by a general control program in which 300 colonies in pastures and yards were destroyed by pouring one cup (about 200 cc.) of 3 per cent "Velsicol 1068" solution into the opening of each colony. Carbon tetrachloride and 95 per cent alcohol were used as satisfactory solvents for the technical concentrate. Other dilutents such as petroleum oils or water suspensions have since been found to serve as well.

The toxic effect of "Velsicol 1068" on warm-blooded animals was not known. It was used cautiously during this experiment with no effect on the operators other than a slight irritation of the nose and eyes caused by fumes from the concentrate.

Hexachlorocyclohexane killed large numbers of ants but did not destroy and colonies, apparently because of its repellent effect and its loss of toxicity after 72 hours.

By Charles H. Brett and W. C. Rhoades, Journ. Econ. Ent., Vol. 39, Hos., Oct. 1946.

Express Your Views

Suggests Joke Colum

To the Editor of Pests:

Would it be presumption for me to make a suggestion for your magazinze? Could you run a joke column of real happenings to pest control operatives? I feel sure that column would be of real interest and no doubt, would help to provide good sales talks for those in this necessary business.

Frank S. Palmer,
9 Achilles Street,
Shirley, Christchurch, New Zealand

Our thanks to Mr. Palmer for an excellent suggestion... Readers are invited to submit items of the tenor described, or, for that matter, on any subject of pest control or personal interest. Ed.

ROTENONE FORMULA VEGETABLE INSECTICIDE—A different approach to insect pest control has been taken through development of a more powerful and completely safe rotenone formula recently placed on the market by the Ketoid Chemical Co., Chicago. The new hydrogenated rotenone formulas combine other extractives of vegetable origin suspended in solvents also derived from a vegetable source, and are guaranteed safe to human beings, animals, and poultry.

WRITE FOR THESE BOOKLETS

A complete assortment of eye protection equipment for every application is described in detail in a colorful new 8-page bulletin published by Mine Safety Appliances Company.

Included in M.S.A.'s full line of eye-protective devices are Chippers' Goggles equipped with M.S.A. Protective Lenses, Chemical Goggles for protection against dangerous chemical particles and splashes, Open frame Ful-Vue Spectacles, spectacles with side screens and leather side shields, Dust Goggles, Dreadnaut Goggles designed for protection against flying particles from any direction, Welders' Goggles with a wide choice of lense types, foundry and melters goggles, acetate spectacles, gas goggles, wire screen goggles, and specially designed goggles for workers who must also wear corrective glasses.

The new bulletin also features the M.S.A. Speedframe, a goggle mounting which eliminates troublesome hand adjustment, M.S.A. Fogpruf for quick efficient cleaning of lenses, and the M.S.A. Goggle Cleaning Cabinet which contains Fogpruf and optical wiping tissues in a convenient wall mounting — designed to encourage workers to wear their goggles and to keep them clean.

A copy of the new M.S.A. bulletin on eye protective equipment (No. CE-29) can be obtained by writing direct to Mine Safety Appliances Company, Dept. P, Braddock, Thomas and Meade Sts., Pittsburgh 8, Pennsylvania.

Effective Control of Termites and Lyctus Beetles

Illustrated; leaflet discusses a few basic facts about subterranean termites, such as how to recognize termite attack how to control subterranean termites and prevent attacks.

Properties of Terratox Formulations also discussed.

Wood Treating Chemicals, Dept. P,
5137 Southeast Ave., St. Louis 10, Mo.

COCKROACH CONCENTRATE

Described is a new oil-base cockroach formula which has been found by authoritative tests, it is stated, to be 3 to 10 times more powerful than DDT. This insecticide combines immediate effectiveness, residual toxicity, safety and economy, it is stated. Useful for many other common insect pests. In space and surface sprays it is effective against Paroah's ant, carpenter ants, lawn ants, Oriental roaches, flies, mosquitoes, clothes moths, carpet beetles, bed-

PORTABLE DRUM CARRIER

This carrier is designed and engineered to simplify the handling of all drums and barrels with embodied safety features to protect the operator.

Sullyvan Corp., Dept. P, 415 West Garvey Ave., Garvey, Calif.

Are you acquainted with the proper DDT insecticides to meet your insect control problems? Geigy Company, Inc., Originators of DDT Insecticides, have prepared these 8 colorful leaflets giving specific information on how, when and where to apply Geigy DDT compositions for best results. Left to right they cover control of pests attacking Forest and Shade Trees; Field Crops; Livestock; Potatoes; Truck Crops; Flowers, Shrubs, Lawns; Dairy Cattle (Barn Fly control); Fruit Trees. These free folders are available if you write Geigy Company, Inc., 89 Barclay Street, New York 8, N. Y.

INSECTICIDE CONCENTRATES

Herein discussed are pyrethrum products, fortified red squill, rotenone and DDT products, benzene hexachloride, the newest of the synthetic insecticides.

R. J. PRENTISS & CO., Inc., Dept. P, 110 William Street, New York 7, N. Y.

FORTIFIED RED SQUILL

Leaflet discusses value of fortified red squill powder or liquid concentrate in the control of rodents. Some constructive suggestions on how to mix effective baits are also included.

R. J. PRENTISS & CO., Inc., Dept. P, 110 William Street, New York 7, N. Y.

BENZENE HEXACHLORIDE

A new technical bulletin on Benzene Hexachloride (666) on a new promising insecticide concentrate for housefly larvae, cattle lice, stableflies, chiggers, grain weevils and moths etc. Manufactured in powder and wettable powder forms. John Powell & Co., Inc., 1 Park Avenue, New York 16, N. Y.

10% DDT POWDER

Circular describes powder containing 10% technical grade DDT and trade-marked "Micro-Mesh." "Micro-Mesh", it is explained, is a powder that has received ultra fine grinding and as a result the active surface of the insecticide has been increased many thousand fold and therefore makes for more effective application, resists caking, and one which penetrates into even the smallest crevices when applied by bellows.

R. J. PRENTISS & CO., Inc., Dept. P, 110 William Street, New York 7, N. Y.

Westvaco Chlorine Products Corporation, New York, has issued Technical Bulletin No. 203 covering Hydrogen Bromide Anhydrous and Hydrobromic Acid 48% Aqueous. This eight-page technical bulletin gives properties, composition range, analyses and uses. It also cites many interesting reactions of these products, with particular reference to the indicated applicability of Hydrogen Bromide Anhydrous as a catalyst, bromination, esterification, condensation, alkylation, isomerization, oxidation and addition compound. A copy may be secured from Technical Sales Division, Westvaco Chlorine Products Corporation, 405 Lexington Avenue, New York 17, N. Y.

PYRETHRUM - DERRIS - RED SQUILL PRODUCTS

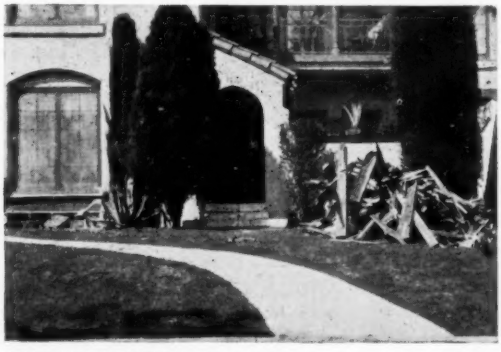
Leaflet describes foregoing insecticides with special bait chart for use in connection with powdered red squill.

WRITE R. J. PRENTISS & CO., 110 William St., New York City 7, N. Y.

RED SQUILL FOR RAT CONTROL

An informative brochure on the value of red squill in control of rats, mice; its effect on domestic animals and man.

WRITE S. B. PENICK & CO., 50 Church St., N. Y. C. 7.



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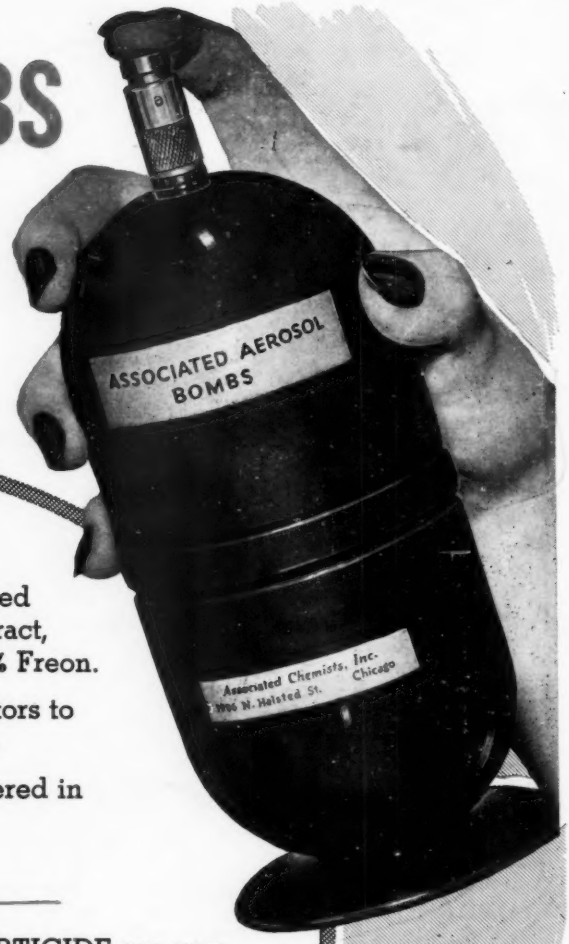

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